

**ENVIRONMENTAL PROTECTION AGENCY**

Section 316(b) Public Meeting

**Thursday, September 10, 1998  
Alexandria, Virginia**

P R O C E E D I N G S

1  
2 MR. ELDER: Good morning, everyone. Good  
3 morning again to many of you. This is the second in  
4 the series of public workshops that EPA is holding  
5 dealing with 316(b).

6 My name is Jim Elder. I'm the facilitator  
7 again for this meeting, and I appreciate everybody's  
8 cooperation. We're starting a few minutes late, but  
9 now it is my pleasure to introduce Mike Cook, who is  
10 the EPA director of the Office of Wastewater  
11 Management, who will introduce the meeting and get the  
12 meeting started.

13 Mike?

14 MR. COOK: Thanks, Jim.

15 We don't mean to load the discussion by this  
16 slide here, but I did want to use that as a backdrop  
17 for introducing this extremely important subject, what  
18 to do about 316(b) and how to achieve the environmental  
19 objectives that underlie that part of the Clean Water  
20 Act.

21 This is the second public meeting that we  
22 have held on 316(b), and we very much appreciate the  
23 interest that you've shown in both the previous meeting  
24 and this meeting.

25 The previous meeting was set up to talk about  
26 a kind of overall regulatory framework that might be  
27 used in producing a more-detailed regulation for

1 316(b), and we received not only a lot of excellent  
2 input at the meeting, but also a lot of very, very good  
3 written documents related to that framework. Of  
4 course, we're looking carefully at those as we proceed  
5 to work on the new regulation.

6 The draft framework, for those who haven't  
7 seen it, is available on our website that has been set  
8 up for 316(b), and I think in the written materials you  
9 have the address for that website.

10 This particular session is designed to talk  
11 about three closely interlocked issues that we think  
12 are raised in the process of trying to prepare this  
13 regulation: technology issues, cost issues, and  
14 mitigation issues. We hope to explore those fully and  
15 actually have, I think, divided up the discussion into  
16 these three categories as we proceed.

17 The expectation I think is that we'll receive  
18 oral views here and any written materials you want to  
19 leave us, and then, again, we would welcome written  
20 materials as follow-up to this, also.

21 I wanted to give you a little bit of legal  
22 background here. I think most of you are well  
23 acquainted with the structure that we operate under,  
24 but actually it is this very simple phrase in the Clean  
25 Water Act that deals with 316(b), and there is very  
26 little additional guidance that we have to work with.

27 The standard here has become known as "best

1 technology available," or BTA, not to be confused with  
2 BAT, which is the standard for effluent guidelines.  
3 This is a different thing and we have to define it.

4 Of course, it is BTA for minimizing adverse  
5 environmental impact, and that whole concept has to be  
6 defined and you have to put the two together. It's BTA  
7 in the context of minimizing the adverse impact.

8 So that's the basic legal framework. Now, we  
9 were sued by the Hudson River Keeper, et al. and  
10 settled with them on a schedule for proposing revisions  
11 to our rules and for making final decision on the rule,  
12 and so it is against that schedule and that commitment  
13 that we are developing this regulation right now.

14 Just a word on kind of the basics of the  
15 regulatory process. The initial part is the study  
16 phase. That's what we're in right now. We're trying  
17 to collect data and ideas and information related to  
18 the issues for this regulation. Among other things, we  
19 expect to have what's called a screener and a detailed  
20 questionnaire that are put out as part of that study  
21 phase to gather specific information.

22 We will then, of course, propose the  
23 regulation and take final action as we have committed  
24 to in our consent order.

25 Now, the next slide here shows those folks  
26 that we're paying particular attention to in the  
27 screener and in the detailed questionnaire.

1           If you would put up the next slide, Jan, I'd  
2 appreciate it.

3           The first six categories of industry here  
4 represent at least 99 percent of the intake water used  
5 for cooling purposes in the United States. It is those  
6 six categories that we're focusing on to receive copies  
7 of our screener and from which we will select parties  
8 to receive the detailed questionnaire.

9           Now, it turns out that, as you can see from  
10 this list, that the steam/electric utilities, the  
11 traditional ones, represent a relatively small number  
12 but, of course, they also represent a pretty large  
13 percentage of the intake water involved, so they are  
14 certainly high on our list of priorities for special  
15 attention. But we also expect to look at the other  
16 categories, as well.

17           Now, just to wrap up here, Jan, I have a  
18 couple of -- I guess one last slide. The information --  
19 -- I said we're in the preliminary stage here. The  
20 information collection that we're doing is based on  
21 existing case studies, industry surveys and site  
22 visits, and then we'll move into analysis.

23           And the -- if you want to keep up with us as  
24 we proceed, you can check with us through the phone  
25 numbers or the fax here, or go online and check the  
26 website and contact us through the website. We  
27 encourage you to follow our activities in developing

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1 this regulation because we have felt from the beginning  
2 that the very best kind of regulation is one where  
3 we're in close touch with the interested stakeholders,  
4 including the regulated entities and all others -- the  
5 environmentalists and states and other entities that  
6 have a major interest in the process. We hope to  
7 continue this interaction as the rule proceeds.

8 Now, I'm going to turn this back to Jim Elder  
9 and let him pick up on the agenda now for the rest of  
10 the day.

11 Thanks, Jim.

12 MR. ELDER: Thank you, Mike.

13 I hate to bore some of you in terms of  
14 discussing the ground rules, but I think it worked out  
15 very well the last time at the June 29th meeting, so I  
16 would like to reiterate those.

17 Some of you, like me, also may be beginning  
18 to suffer from medium-term memory loss, so it would be  
19 a good idea for that reason, even if you were at the  
20 June meeting.

21 Again, we're seeking a constructive exchange  
22 of ideas. We do not want to get into an argumentative  
23 type of discussion with people in the audience, with  
24 people at the table, or people at the table with each  
25 other. I think everybody maintained that spirit at the  
26 last meeting extremely well.

27 Again, the people at the table will be given

1 priority to speak. Again, we have a lot of empty name  
2 tags at the table. If there are people from any of  
3 these organizations, I would encourage you now to  
4 please come forward and take your proper place. They  
5 include Electric Power Supply Association, American  
6 Petroleum Institute, Iron and Steel Institute, Peconic  
7 Bay Keepers, Scenic Hudson, Narragansett Baykeeper,  
8 Delaware River Keeper, NRDC. So maybe if we recognize  
9 some of those people coming in later, we'll encourage  
10 them to sit at the table.

11 Again, I encourage you to limit your remarks  
12 to a maximum of three minutes. I do retain the  
13 opportunity to intervene to try to keep the meeting on  
14 track and try to encourage as many people as possible  
15 to enter into the discussion.

16 If we have ideas that come up that don't seem  
17 to be appropriate for the particular topic that we're  
18 discussing, again, we will put them into a parking lot  
19 and make sure that we come back to those before the end  
20 of the meeting, either today or tomorrow, since this  
21 meeting is a day-and-a-half long, as opposed to the  
22 one-day meeting in June.

23 In regard to this meeting, EPA will be  
24 accepting written comments up until October the 5th,  
25 1998.

26 I think all of the EPA people will end up  
27 being introduced, but we have at the table, to my left,

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1 in addition to Mike Cook, Deborah Nagle, the project  
2 officer; Lynne Tudor, an economist who will be leading  
3 one of the discussions later, as well as Deborah; Dave  
4 Gravallesse from the Office of General Counsel; and Brad  
5 Mahanes, a biologist from Office of Regulatory  
6 Enforcement.

7 And I apologize, I don't recognize you, sir.

8 MR. MORGAN: That's because I'm new. I'm  
9 J.T. Morgan.

10 MR. ELDER: Okay.

11 MR. MORGAN: I'm with USEPA.

12 MR. ELDER: Okay. My apologies, J.T. Which  
13 office are you with?

14 MS. NAGLE: J.T. Morgan -- this is his second  
15 day with EPA, and he'll be working with me on the  
16 316(b) team.

17 MR. ELDER: Okay. All right. Good. So  
18 would you like to take over from this point?

19 (Laughter.)

20 MR. ELDER: I also would like people at the  
21 table to introduce themselves by name, as well as their  
22 personal and organizational affiliation.

23 Dennis, if we could start with you at this  
24 point and just go quickly around the table.

25 MR. DUNNING: My name is Dennis Dunning. I  
26 work for the New York Power Authority, and I am  
27 representing the Large Public Power Committee today.

1 MR. ELDER: Thank you. And --

2 MS. VANROSSUM: Maya VanRossum, Delaware  
3 Riverkeeper.

4 MR. ELDER: Welcome back.

5 MS. HANCZOR: Theresa Hanczor, attorney,  
6 Riverkeeper.

7 MR. SARBELLO: Bill Sarbello, New York State  
8 Department of Environmental Conservation.

9 MR. RADLE: Ed Radle, New York State DEC. I  
10 am the Steam Electric Unit Leader.

11 MR. YOUNG: Leroy Young, Pennsylvania Fish  
12 and Boat Commission.

13 MR. RUITER: Bart Ruiter with DuPont,  
14 representing the Chemical Manufacturers Association.

15 MR. STINE: I'm Jim Stine. I work for  
16 Baltimore Gas & Electric, and I'll be speaking on  
17 behalf of UWAG and Edison Electric Institute.

18 MS. BULLEIT: Kristy Bulleit. I'm a lawyer  
19 with Hunton & Williams, and I'm representing NRECA and  
20 UWAG.

21 MR. TAFT: Ned Taft. I'm a biologist at Alden  
22 Research Laboratory and I have been invited to be here  
23 today by UWAG and TVA.

24 MR. ZAMMIT: Kent Zammit with Electric and  
25 Power Research Institute, and I represent EPRI.

26 MR. BOZEC: Good morning. Rich Bozec. I'm  
27 with Edison Electric Institute.

1 MR. WEMHOFF: Bill Wemhoff, American Public  
2 Power Association.

3 MS. LITTLETON: Good morning. I'm Debra  
4 Littleton, Department of Energy, Office of Fossil  
5 Energy.

6 MR. VEIL: I'm John Veil with Argonne  
7 National Laboratory, technical advisor to Department of  
8 Energy.

9 MR. ELDER: Okay. Thank you everyone for  
10 keeping that short.

11 Let me talk a little bit about housekeeping  
12 again. As is the EPA tradition, lunch is on your own.  
13 We have an hour and a half set aside for lunch, from  
14 12:30 to 2:00. The rest rooms are to your right as you  
15 go out of this room, down on your left. I haven't seen  
16 them yet, but I understand that there are a bank of pay  
17 phones past the registration desk on your right. It  
18 sounds like they're a little bit obscure, but I'm sure  
19 if you get lost the people at the registration desk  
20 will help you. When I say "registration desk," I mean  
21 the hotel registration desk, not the meeting  
22 registration right out the door.

23 In terms of incoming calls, if you have a  
24 beeper or a cell phone, please set it on the vibration  
25 mode or a light mode for the phone so we don't have  
26 those types of disruptions.

27 Unless I left anything out, I'd like to turn

1 the meeting over to Deborah Nagle, who will lead the  
2 discussion about the best technology available.

3 MS. NAGLE: Okay. So we all know what the  
4 best technology available is, right? Very easy, simple  
5 solution.

6 In Mike Cook's presentation I'm sure  
7 everybody knows what the act says, but there's that  
8 little one sentence that sticks out that says that the  
9 location, design, construction, and capacity of the  
10 cooling water intake structure should reflect best  
11 technology available.

12 So it sounds kind of obvious, but one of the  
13 questions EPA needs to address and research is, What is  
14 best technology available? I want to make sure that  
15 every kind of -- that I get your mind on the same --  
16 well, what are technologies that we're looking at.

17 Here are some examples of intake structures  
18 or technologies that are being used out at plants or  
19 other type of facilities that have intake structures.  
20 This happens to provide a level of intake structures --  
21 you have your horizontal screen, you have a variety of  
22 different vertical traveling screens, rotating disks,  
23 and so forth. Those are one type of technology that  
24 you see out there.

25 Another type of technology that we see is  
26 something called passive intake screens with wire  
27 screens. Leaky dam -- I think there are a couple of

1 those out there. That's kind of a strange one. Porous  
2 dikes, radial wells.

3 There are also technologies out there that  
4 actually divert the fish from even entering into the  
5 area in which it would be impinged or entrained, and  
6 these are called fish diversion and avoidance systems.

7 You see things out there like sound barriers  
8 or like those light-type technologies. I know, like,  
9 flash technology is one of those type.

10 You have fish net barriers. I've seen a lot  
11 of those out there where you put a net out in front of  
12 the -- so far out in front of the intake structure, and  
13 it keeps the fish from entering into the intake.

14 There's electrical barriers and so forth.

15 So those are types of fish diversion systems.

16 And then there's another type of technology,  
17 and this is once the fish are entrained or impinged on  
18 the screens, what technologies are there to help them,  
19 if they can survive, to get them off the screens and  
20 put them back into the water bodies so they can  
21 continue to thrive. And these are a number of the type  
22 of systems that are out there, such as fish ladders or  
23 holding tanks and bypass systems that are in existence.

24 So this is just to give you a flavor as to  
25 what technologies are being used, and they're being  
26 used in combination, or singly. There is no -- I don't  
27 think there is a single plant that's probably exactly

1 the same.

2 So there's a -- while we're looking at this  
3 issue of what is best technology available, there are  
4 several issues that have arisen that EPA is seeking  
5 input on and doing research on, and one is, Is there a  
6 best technology or a suite of technologies -- in other  
7 words, it doesn't have to be just one; it could be a  
8 combination of technologies -- that could be applied on  
9 a national basis. In other words, is there one  
10 technology or suite of technologies that you could say  
11 that every single plant should absolutely have in order  
12 to meet best technology available.

13 Now, if you say, "Well, maybe there's not one  
14 on a national basis," then the question becomes, Well,  
15 if you can't apply one nationally, for whatever reason  
16 it might be -- don't know -- could we establish a  
17 technology or a suite of technologies that would be  
18 expected by water body type -- in other words,  
19 facilities that are located on estuaries, does it make  
20 sense that they should have to meet BTA requirements  
21 with a certain technology?

22 If their facilities are located on large  
23 rivers, so they have a different set, but everybody on  
24 a river would have the same set of technologies in  
25 order to meet BTA. Don't know. I mean, that's the  
26 question we're asking.

27 And, if so, what are the conditions and the

1 factors? If you could apply something for an estuary  
2 and apply a technology for lakes, you know, across the  
3 country, what's the reason why you couldn't apply those  
4 technologies on a nationwide basis?

5 So those are some of the things that we're  
6 thinking about as we look at this issue of what is BTA.

7 And then we always seem to think structural.  
8 You know, everything I sort of put up there was nets  
9 and screens, fish ladders. Those were all structural-  
10 type things. Are there other measures other than  
11 mitigation -- we're not going to talk mitigation on  
12 this one -- other than mitigation such as operational  
13 type activities that should also be considered in  
14 setting BTA.

15 Now, not only are we interested in what is  
16 BTA and trying to establish that, but then kind of the  
17 next question is, "Okay. Well, let's say a facility  
18 puts in best technology available. Well, how do you  
19 know it is working? You know, is it really minimizing  
20 the adverse environmental impacts?"

21 So that's kind of the second part of our  
22 issue that we want to deal with is how do you measure  
23 the efficacy of that technology? Are there -- is there  
24 criteria that should be established to make sure that  
25 technology is working for that particular area?

26 And, you know, what could it be? Should it  
27 be performance-based type measurements such as, okay,

1 if you get two buckets of fish it's not working; if  
2 you're getting one bucket of fish, okay, it is. Or is  
3 there some kind of, you know, performance rate? If no  
4 more than 10 percent of the population of the blue crab  
5 for that particular water area, should that be a  
6 performance standard?

7 These are just ideas to help you start  
8 thinking.

9 Okay. That's my kind of lead-in to this  
10 topic of what is best technology available. So what  
11 I'd like to do is go back to the first issue that I put  
12 up, and that is, Is there a BTA technology or suite of  
13 technologies that can apply nationwide?

14 The floor is open.

15 MR. ELDER: Well, since you now have the  
16 portable mic, I'll deal with the lectern and try to be  
17 unofficial up here.

18 Bart from CMA?

19 MR. RUITER: Quick question, Deborah. I  
20 heard what we're going to be talking about this, like,  
21 two days. How does that tie in to the last meeting  
22 that we had related to regulatory framework assessment?  
23 I mean, what's the connection of the two, so I can  
24 fully understand where we're coming from on this?

25 MS. NAGLE: That's a good question. I mean,  
26 in the act it all fits together. You have to have an  
27 adverse environmental impact. We've kind of stated

1 before that you have to have an adverse environmental  
2 impact in order to have to do, I guess, anything in  
3 additional to what the plant currently has.

4 And so the way I think they tie in is it's  
5 like a piece of the puzzle. I mean, I think, in order  
6 for us to finalize or to come out with a different  
7 draft of the framework that we set out last meeting is  
8 that we have to understand, at least from your  
9 viewpoints, what you think BTA is and what are the cost  
10 issues and what are mitigation issues, because that all  
11 ties in to how a decision framework would fall out.

12 So it's just another piece that has to tie  
13 into the complete decision framework from beginning to  
14 end.

15 Brad, did you have anything else on that?

16 MR. ELDER: While we're at it, Kit Kennedy  
17 has come, so I'd like her to introduce herself before  
18 we move on.

19 MS. KENNEDY: Hi. I'm Kit Kennedy from NRDC.

20 MR. ELDER: Thank you.

21 All right. Does anybody else have questions  
22 or comments? Theresa?

23 MS. HANCZOR: Yes. There's a glaring  
24 omission on the list of cooling water intake  
25 technologies --cooling towers, closed cycle cooling.

26 MS. NAGLE: Okay. Maybe Dave will have to  
27 help me on this, but I -- from past history, cooling

1 towers were not considered a technology but a way in  
2 order to meet capacity requirements which were flow.  
3 In other words, if a facility was required to reduce  
4 their flow, typically a system -- because that goes to  
5 a system, those cooling towers, because it is closed  
6 loop -- that was the way in which the facilities were  
7 able to meet that capacity limit.

8 MS. VANROSSUM: Can I just follow up on it?

9 MR. ELDER: Sure.

10 MS. VANROSSUM: So would it make sense to add  
11 on to this list then something about reduction of  
12 capacity to accommodate that need then, from a legal  
13 perspective?

14 MS. NAGLE: Okay. Well, I mean, yes, and I  
15 guess that's one of the questions. When I put up the  
16 list of technologies, when I put that list up there for  
17 you to look at, it was mainly to look at -- it was all  
18 the structural-type things from a technology standpoint  
19 that have been in place.

20 Now, we can look at it, I think, differently.  
21 You could say, How can limits on capacity force, you  
22 know, certain technologies, or how can design for new  
23 facilities force certain technologies. But I  
24 understand your issue.

25 And it may fall under operational measures,  
26 as well.

27 MR. ELDER: Kit?

1 MS. KENNEDY: Just adding to this. Whether  
2 you call it "operational" or "structural," it certainly  
3 needs to be on the list. And I think historically, if  
4 you look at the cases where 316(b) issues were they  
5 were most famously hashed out, including on the Hudson  
6 River, the debate was, "Well, we're building cooling  
7 towers as a 316(b) technology measure."

8 So whether it was an operational technology  
9 measure or a structural technology measure doesn't  
10 matter, but clearly it is a measure of what you applied  
11 at a plant that dramatically reduces the scope of the  
12 problem.

13 So, you know, it serves as something which  
14 you just can't have a discussion about technology  
15 unless it's there on the table.

16 MS. NAGLE: And maybe the right way to look  
17 at that is once-through cooling versus closed-loop  
18 cooling as a system.

19 MS. KENNEDY: Right.

20 MS. NAGLE: Because that does get to the  
21 capacity issue. Okay.

22 MR. ELDER: Kristy?

23 MS. BULLEIT: Since we seem to have launched  
24 into some of the substance of the discussion, I guess  
25 I'd like to provide something.

26 MR. ELDER: As long as you don't use that  
27 word.

1 (Laughter.)

2 MS. BULLEIT: I'd like to address the same  
3 topic.

4 We think that your list of technologies is  
5 accurate, as it stands. As a general matter, as you  
6 said, as the Agency has long acknowledged, we don't  
7 believe that cooling towers are part of the clean water  
8 intake structure, which is part--which is the focus of  
9 316(b). Cooling towers provide a closed-cooling  
10 system, and they are sustained in that there is some  
11 reason why Congress chose to focus on the clean water  
12 infrastructure instead of the facility, as a whole,  
13 with the cooling system.

14 There are a lot of practical reasons that we  
15 can get into later as to why cooling towers also would  
16 not be BTA, even if they were candidate intake  
17 structure technologies, but I'll save those for later.

18 You also touched on the concept of operating  
19 capacity restrictions. We certainly agree that  
20 Congress gives EPA the ability to look at technologies  
21 related to the capacity of clean water intake  
22 structures, but we think that the Agency has to  
23 identify capacity-related technologies pertinent to the  
24 structure.

25 We don't believe that Congress gave the  
26 Agency any authority to simply impose operating  
27 restrictions and to identify those in some way as a

1 technology. If they wanted to do that, I think they  
2 would have said so, and they didn't. They chose,  
3 instead, to focus on technologies related to capacity  
4 of the intake structure, not in the facility or system  
5 as a whole.

6 MR. ELDER: Do we have other comments on this  
7 underlying issue? Richard? Welcome back.

8 MR. DELGADO: Richard Delgado. I do not  
9 speak on behalf of any organization. I consider the  
10 flow of the cooling water intake structures to be a  
11 major factor in the environmental impact that structure  
12 has. I encourage EPA to consider flow as a performance  
13 factor that it regulate or consider regulating.

14 I want to talk about cooling towers and I  
15 want to talk about non-cooling towers.

16 We have to look at alternatives to cooling  
17 towers in terms of restricting flow or potentially  
18 restricting flows. There are many facilities which may  
19 be using more water than they actually definitely need  
20 or than they need. They need to restrict the flow. In  
21 most cases, you will be restricting the environmental  
22 damage from the facility.

23 Sometimes turning off a pump when a facility  
24 is not producing electricity will have a significant  
25 impact in reducing the environmental impact of a  
26 steam/electric or other facility to using cooling  
27 water.

1 I want to talk about cooling towers. And  
2 when we're talking about minimizing adverse  
3 environmental impact, most of the time we are talking  
4 about recirculating cooling towers. Recirculating  
5 cooling towers certainly are available technology.  
6 They're demonstrated and they're in service in many  
7 facilities, so we have a technology that is available.

8 There sometimes are adverse environmental  
9 impacts, and we want to consider them talking about  
10 cooling towers.

11 The major issue when we're talking about  
12 cooling towers, whether we're putting them in on a  
13 plant-by-plant, piece-by-piece basis, or whether we're  
14 looking at something that is a national technology, the  
15 major thing we have to consider is cost.

16 I hope we're going to be talking about that  
17 more in terms of determining when the cost of the  
18 facilities or when the cost of the candidate  
19 technologies magnifies when you talk about BTA. It is  
20 totally disproportionate to the environmental benefit.

21 So you have that technology. It is clearly  
22 demonstrated and available. The question is, What is  
23 the reasonable cost.

24 MR. ELDER: Okay. Thank you.

25 Are there other comments dealing with this  
26 underlying issue about, you know, what is it that's  
27 kind of within scope when we're talking about

1 technology?

2 Theresa?

3 MS. HANCZOR: I'd just like to point out that  
4 Congress very early on recognized capacity to be the  
5 key component when you're dealing with the impacts to  
6 the fish, and the EPA has said in the 1970s on the  
7 Hudson River that cooling towers were BTA in that  
8 situation.

9 Since cooling towers can reduce the amount of  
10 fish kill by as much as 90 percent, and no other  
11 technology or if you want to call it operational  
12 methods can, to this date, to my knowledge, meet that  
13 limit except shutting down of the plants, I find it  
14 very hard to understand now why you are considering  
15 cooling towers not to be a technology and, furthermore,  
16 not to be BTA.

17 MR. ELDER: Okay. Ed?

18 MR. RADLE: Cooling towers are such an  
19 obvious solution to problems if there are problems at  
20 the intake, and to exclude them from consideration is  
21 just ignoring, you know, one of the major possibilities  
22 and it just doesn't make any sense at all to me to  
23 exclude those from consideration.

24 They clearly are relative to the intake  
25 capacity explicitly, as noted in the legislation, and  
26 to say, "Well, that doesn't count in here" --

27 MR. ELDER: Could I get a clarification?

1 When people are making these comments about cooling  
2 towers, are they talking about once-through cooling  
3 towers or recycling cooling towers?

4 MR. RADLE: I don't think there is such a  
5 thing as a once-through cooling tower. You're mixing  
6 terms. There's a once-through cooling system, which  
7 basically draws the water, condenses the steam, and  
8 then is discharged.

9 MR. ELDER: Yes.

10 MR. RADLE: And then you have a recycling  
11 cooling tower, in which the water is drawn in and it  
12 goes through numerous cycles and then is discharged.

13 MR. ZAMMITT: There are helper towers,  
14 though, that allow you to reduce the discharge  
15 temperature of the one-through systems.

16 MR. RADLE: But you just -- not to reduce the  
17 volume, just to reduce the temperature?

18 MR. ZAMMITT: Correct.

19 MR. ELDER: Yes.

20 MR. RADLE: I stand corrected.

21 MR. ELDER: Brad?

22 MR. MAHANES: Just maybe to help frame the  
23 discussion a bit, I don't think it was our intent at  
24 all to exclude any of the candidate technologies that  
25 would address capacity, and, as we know from previous  
26 OGC opinions and permit decisions, capacity is the same  
27 thing as flow.

1           So, to the extent that we're looking at those  
2 candidate control technologies that would reduce flow  
3 so as to minimize adverse impact, those things are on  
4 the table, and I think everyone at the table here and  
5 the audience would agree that closed-cycle cooling is a  
6 technology that is out in use today, and so would be  
7 appropriate for consideration.

8           MR. ELDER: All right. Unless there are  
9 other issues about that, I'd like to go back to the  
10 question that is up on the projector. Is there a  
11 technology or suite of technologies that could be  
12 applied on a national basis?

13           Jim?

14           MR. STINE: I'll address that.

15           I think the way we look at the problem is to  
16 -- first of all, it doesn't make sense really to apply  
17 a given technology across the board, either nationally  
18 or within particular water bodies. It is a site-  
19 specific problem-solving exercise, and so what we feel  
20 is that the appropriate place to start is to first  
21 understand whether or not the cooling water intake  
22 structure is most likely to cause an adverse  
23 environmental impact based on population level analysis  
24 to the representative important species.

25           Now, I used a lot of terms there, and those  
26 are -- and I use that because those are the kind of  
27 things we talked about at the last public meeting.

1 I think Bart's question was particularly  
2 telling. How do these two meetings tie together? It  
3 ties together this way: at first you need to  
4 understand what's the cause of the problem. And once  
5 you identify that the cooling water intake system is  
6 having an adverse impact, understanding the how's and  
7 why's, that gets you halfway to solving the problem and  
8 helps you to identify what technology should be  
9 applied.

10 Again, I think this is inherently site-  
11 specific, and we have seen a number of cases that  
12 different technologies can work well in one setting and  
13 not so well in others.

14 I can also tick off a couple of items that  
15 are important to think about, and this really goes to  
16 the second question, as well -- why it's not a national  
17 technology or technology that would apply to particular  
18 water body types.

19 We need to think about things like the  
20 characteristics of a water body, itself, and they would  
21 be things like temperatures, salinities, hydraulics,  
22 the type of substrates that are present, and also  
23 biological communities that are present. They would  
24 have different reproductive mechanisms -- if you can  
25 imagine a whole raft of issues that would go with the  
26 biological populations.

27 And then, along with the cooling water intake

1 structure, there are, again, as you pointed out,  
2 Deborah, no two are alike. A lot of important factors  
3 are its location, how often it is operating.

4 So we could talk about a lot of details on  
5 those things if need be later on, but the point is that  
6 there are an awful lot of site-specific factors that  
7 need to be considered, and I think that what we should  
8 be going toward today is a process for doing that site-  
9 specific problem solving at a particular location.

10 MR. ELDER: Okay. Kit?

11 MS. KENNEDY: Just taking another view, I  
12 think BTA should be decided on a national basis, and  
13 perhaps the model to use is how BTA is formulated under  
14 other provisions of the Clean Water Act. If I've  
15 gotten this wrong, please straighten me out.

16 MR. ELDER: You mean the technology floor  
17 associated with BAT and then the water quality  
18 standards layered on top of that where necessary?

19 MS. KENNEDY: Exactly. And it's my  
20 understanding that when we look at how different  
21 programs are formulated, BTA standards are developed by  
22 industry, and those are nationwide. And then water  
23 quality limitations are added to that.

24 But to do a site-specific best technology  
25 available search doesn't seem to make sense, because  
26 there are technologies. You know, we know what the  
27 technologies are. The technologies are available on a

1 national basis.

2 So I think that we should be looking for  
3 consistency between how we approach 316(b) and how we  
4 approach the same type of determination under the daily  
5 provisions of the permitting system.

6 MR. ELDER: Okay. I'm sorry. I didn't  
7 recognize who was first, Bill or Jim? Was it Bill?  
8 Bill, go ahead. I'll get you next, Jim.

9 MR. SARBELLO: I'd like to suggest something,  
10 and that is, Is that building on what you said? We  
11 probably disagree on what a definition of an adverse  
12 impact is, but if you have a situation where there's  
13 likely to be an adverse impact, I'd like to suggest  
14 that a new source performance standard perhaps could be  
15 suggested on a national basis, and that for existing  
16 sources you'd probably need to do a site-by-site  
17 technology assessment.

18 For a new source performance standard I'd  
19 suggest that cooling towers or equivalent level of  
20 mitigation should be the standard. That is, if you  
21 have a situation where there is an adverse impact or  
22 the likelihood of an adverse impact, estimate what the  
23 impacts would be reduced to if a cooling tower type of  
24 technology -- that is, lower volume, use of cooling  
25 towers to reduce the volume and use of state-of-the-art  
26 intake technology, estimate what that would be.

27 If it can be affirmatively demonstrated that

1 some other technology would do as well or better, and  
2 particularly if it is close and there is a substantial  
3 difference in cost, then you could probably make an  
4 affirmative argument that the different technology  
5 would be as good or better, and that probably would  
6 have less impacts in some other areas like aesthetics,  
7 energy use, et cetera.

8 You may want to add a size threshold. Some  
9 very small intakes -- if you do some analysis it may  
10 show that very small intakes may not be as much as a  
11 problem, or more easily mitigated through other  
12 technologies other than cooling tower. Essentially,  
13 use that as a bench mark for new source performance  
14 standards.

15 MR. ELDER: Okay. Jim, did you still offer a  
16 comment?

17 MR. STINE: No.

18 MR. ELDER: Okay. Then Bart was next.

19 MR. RUITER: I have concerns when I hear that  
20 we're trying to set a national standard in cooling  
21 towers. When you have a lot of discharge, especially  
22 for the smaller dischargers, putting in a cooling tower  
23 -- you know, what's minimal?

24 So my experience has always been that if you  
25 set a standard, then the cost just goes astronomically  
26 up because there is no way to further evaluate when it  
27 does make sense not to go forward with it.

1 I'm concerned that the smaller dischargers  
2 related to cooling tower need to be considered in the  
3 process, and that if you are a couple of percent of the  
4 total 7Q10, you know, are you going to be actually  
5 having adverse impacts?

6 I ask that question because it would seem to  
7 me that if you -- this is, I think, with the tiered  
8 approach and the technology comes together in that  
9 process.

10 MR. ELDER: Bart, maybe for the help of some  
11 of the people in the audience, could you define 7Q10?

12 MR. RUITER: Seven-day moving average -- low-  
13 flow seven-day moving average in a ten-year period.

14 MR. ELDER: Thank you. Ned from TVA?

15 MR. TAFT: As someone who has been involved  
16 in the research and development of the technologies,  
17 and specifically for this type of application, for 27  
18 years, I just wanted to make a couple of comments  
19 relatively particularly to this question of the  
20 national basis.

21 First, I think it is strongly my opinion  
22 that, based on all of the studies being done to date,  
23 that impacts are site-specific, and the way that they  
24 are addressed in terms of the technologies that are  
25 evaluated for potentially reducing those adverse  
26 impacts also has to be site specific.

27 There have been many cases where intakes that

1 are in close proximity, or even intake bays within a  
2 particular structure showing large difference in the  
3 number of fish that are entrained or impinged, the --  
4 if you look at some of the historical settings, there  
5 has been no direct relationship between flow, velocity,  
6 and impingement. There have been many, many other  
7 factors that come into play that relate to how a  
8 species and a life stage at a particular site reacts to  
9 the intake that is there.

10 And we see many examples in literature, and  
11 some that I have been involved with, where you really  
12 have to search hard to find a reason why one intake  
13 might be getting more fish than another. An example is  
14 two intakes very close to each other, almost identical  
15 in design, one was getting in 30 times more fish than  
16 the other. There was no apparent reason for that.

17 So I think, just from the impact point of  
18 view, the evaluation of technologies to determine BTA  
19 has to be site specific, and it may be that even on a  
20 given water body what's applicable in one place may not  
21 be applicable on another, and that may have more to do  
22 with physical parameters.

23 For example, a plant might be located -- one  
24 plant across the river from another might be located in  
25 an area where you can install a particular passive  
26 technology, whereas the plant on the other side of the  
27 river just can't because of practical reasons.

1           So I feel strongly that it has to be a site-  
2 specific type of evaluation.

3           And, Bill, just to comment a little bit on  
4 what you said, you talked about performance standards  
5 at new facilities, but what you described after that  
6 was essentially, "We want cooling towers, but if you  
7 want to try to convince us that something else will  
8 work equally well, then we'll listen to you."

9           And I think really what you're talking about  
10 is the same process. You're making -- you're asking  
11 the owner, the operator to basically assess different  
12 technologies. From that standpoint, I don't see the  
13 distinction between new and old.

14           MR. ELDER: I recognize Jim first, and then I  
15 think it was a tie between Kristy and Bill.

16           MR. STINE: I would like to go back and  
17 address this question of the analogy with the BAT, the  
18 technology base standards, that we've seen on, like,  
19 air pollution discharges or water discharges.

20           I just don't think that works in this case  
21 because, as an engineer, I've been trained to look at,  
22 like, a process stream and design a piece of equipment  
23 to manipulate that process stream, and that certainly  
24 works when you're working on a water discharge.

25           What EPA has done in the past is segregated  
26 the water discharges so they're dealing with streams  
27 that are reasonably homogenous, different categories,

1 and then selected a technology with some confidence and  
2 applied it to that particular stream.

3 It's complete reversed here. What we're  
4 dealing with is interaction of the cooling water intake  
5 structure with the surrounding environment, and that  
6 surrounding environment is extremely variable. The  
7 cooling water intake structure, itself is extremely  
8 variable. And those interactions are just, you know,  
9 going to be different from case to case.

10 That's really why I think it is a mistake to  
11 think that we're going to find one technology that is  
12 going to make sense in all these cases. In some places  
13 it's overkill, and in some cases it is not going to do  
14 the job.

15 I guess the other point -- I'm not the best  
16 person to respond -- Deb, you might want to fill in --  
17 but I'm not sure that you could develop a level of  
18 performance that you could associate with cooling  
19 tower. I mean, it is a variable, and where a cooling  
20 tower is behaving in one environment, how do you select  
21 which is the baseline to go with? I don't think the  
22 idea works.

23 MR. ELDER: Okay. Kristy, still want to add  
24 anything?

25 MS. BULLEIT: No.

26 MR. ELDER: Okay. Bill?

27 MR. SARBELLO: Yeah. I was trying to

1 discriminate on that one point in terms of is it the  
2 same or is it different.

3 In our -- to do a site-by-site analysis for  
4 everything is going to entail a lot of detailed  
5 studies, and that may be an option that an applicant  
6 may want to do, and certainly ensures a whole  
7 appointment of biologists for a long time to come,  
8 which is nice if you're a biologist.

9 But, on the other hand, sometimes it is nice  
10 to give an applicant an option of selecting the  
11 technology which we're quite sure is going to work in  
12 all situations, and they can choose if they want to  
13 either accept the off-the-shelf solution that everybody  
14 agrees that the off-the-shelf solution is good, or  
15 launch into a detailed analysis.

16 For example, we have a lot of non-utility  
17 generators that built combined cycle plants that their  
18 basic design is to include cooling towers and to either  
19 use groundwater as their water supply or, in the case  
20 of a large, 1,000 megawatt thing, maybe the water was  
21 coming from a municipal water source which had a good  
22 intake, and that result was needed no study, they're  
23 killing no fish, and we're happy, they're happy, and  
24 they got their plant done ahead of schedule. That's a  
25 nice option rolling around in that situation.

26 On the other hand, if someone wants to --  
27 thinks that it is a case of overkill, then there is the

1 opportunity to go into it deeper, and EPA leads the way  
2 in terms of doing research and studies.

3 For some very small intakes, there may be  
4 some off-the-shelf solutions that aren't cooling towers  
5 that may do a very good job, like wedge-wire screens or  
6 smaller capacity, as an example.

7 So that's the concept behind giving the  
8 option, taking a technology approach, or the other  
9 option would be to do the intensive study and make a  
10 case that something else is better or needed.

11 MR. ELDER: Theresa first.

12 MS. HANCZOR: Yes. As what Ned said before  
13 when he was advocating site specificity, he said that  
14 there's no relationship between flow and impingement.  
15 You know, you're not saying the same thing is true for  
16 entrainment, are you?

17 MR. TAFT: I would intuitively say that with  
18 the passive organisms, the more water you take in, the  
19 greater the probability that you would have, but there  
20 are also ways of locating intakes or relocating intakes  
21 to put them into areas of relatively low biological  
22 activity. I think that's an option.

23 I also think that entrainment -- as Bill just  
24 mentioned, there are other technologies, such as wedge  
25 wire screens and fine mesh screens that have been in  
26 use, and I'll come back to the site specificity later,  
27 as well.

1           You have to be careful that you know exactly  
2 what it is you're trying to protect under what  
3 conditions so you don't put in a technology that may  
4 help one situation -- for example, a species that has  
5 been identified as being adversely affected -- and  
6 shift to impacting some other species that was  
7 surviving very well and going through the plant before  
8 you put the fine mesh in that causes the organism to be  
9 impinged.

10           So, again, I'd come back to that need, and  
11 whatever the technology is I think it needs to be site  
12 specific.

13           Not to keep going back and forth, I'm not  
14 sure why we're limited to small intakes. I mean, if  
15 you're thinking about pilot applications just to prove  
16 the technology, there are wedge wire screens that have  
17 been in operation for many years, a large category,  
18 very large plants. The technology is there.

19           MR. ELDER: Okay. Dennis?

20           MR. DUNNING: I'd like to make an  
21 observation, and I think the question that is being  
22 posed is relevant when you look at it in the context of  
23 316(b), which requires best technology available to  
24 minimize adverse environmental impact.

25           I think what we're hearing is that there are  
26 different interpretations of adversity, which is what  
27 came out of the first meeting, and if your definition

1 of adverse is killing one fish, then clearly one  
2 particular technology is likely to fit your definition  
3 of what is a national standard or what might be a  
4 reasonable standard.

5 If your definition of adversity is at a  
6 different level than simply the killing of one fish,  
7 then the question of what is best technology available  
8 is a very different one.

9 I think what we're hearing simply here is  
10 that there are people with different understandings of  
11 what adverse is defined to be, and until the issue of  
12 adversity is clear, I think it will be very difficult  
13 to answer questions one and two.

14 MR. ELDER: Okay. Let me get to Richard  
15 first. I had held him back a little bit. Then we'll  
16 come back to the people at the table.

17 MR. DELGADO: I want to speak in favor of  
18 having some type of national standards, though I'm not  
19 trying to say that there are no site-specific factors.  
20 There certainly are. Site-specific factors are very  
21 important in dealing with these cooling water intake  
22 structures.

23 Bill spoke to the idea of national standards  
24 and performance. When you're dealing with agencies  
25 such as states, there are very significant resource  
26 applications for each site-specific analysis and having  
27 some type of national standards is certainly going to

1 be helpful in that regard.

2 There are other reasons why a national type  
3 of standard is very appropriate, particularly as we're  
4 getting away from the old-fashioned, vertically-  
5 integrated electric utility. We have to realize that  
6 power is becoming a commodity. The nature of the  
7 industry that we've seen in the past is changing and  
8 will continue to change.

9 There is a great benefit to having some type  
10 of uniformity in terms of the way the facilities are  
11 treated and regulated on a national basis.

12 When you're dealing with a small state such  
13 as New Jersey, clearly you see the power being brought  
14 in from many other states. You actually see power  
15 being brought in from the Canadian provinces. You will  
16 see the power being transported significant distances,  
17 and there are benefits for having some type of national  
18 standard of performance in both resource considerations  
19 and regulatory agencies and in terms of who will be  
20 treated on a fair or equitable basis.

21 MR. ELDER: Thank you. Ma'am, would you  
22 identify yourself also?

23 MS. HARGRAVE: Olivia Hargrave. I think in  
24 this discussion it is important, when you're looking in  
25 the sections of the Clean Water Act, to realize that  
26 the chemicals, the categorical standards and  
27 [inaudible] are based on the statutory language of BAT

1 after that they are economically achievable. That was  
2 to distinguish it from BTA, which had to be done  
3 earlier.

4 But linkage to 316 is very different, and  
5 that's why they called it BTA, best technology  
6 available, and as long as we keep that distinction it  
7 will be -- and BTA 316 ties very much to the adverse  
8 impact and minimizing that impact.

9 So BAT and BTA, to my reading of the act, are  
10 very different concepts, and it is important not to  
11 confuse them and to try to draw too much from the other  
12 one.

13 I think it is important in this discussion of  
14 national standards versus site-specific or water-body-  
15 specific type standards.

16 MR. ELDER: Okay. Kit?

17 MS. KENNEDY: Going through to Bill's  
18 suggestion of sort of a new sort of performance  
19 standard for new plants, I mean, certainly we don't  
20 think the national BTA standards should be limited to  
21 new plants, but I think Bill's idea is quite  
22 interesting.

23 One thing that EPA might want to investigate  
24 is, to my knowledge, new plants that are being built  
25 today, both utility plants and, more frequently, the  
26 independent power plants, as Bill mentioned, that are  
27 of good size are putting in cooling towers. Certainly

1 that's a trend in New York, and I'm not aware of recent  
2 power plants that have gone up without closed-cycle  
3 cooling.

4 If that's the case, then we may de facto have  
5 a NSPS for new a plant, and perhaps that part of the  
6 equation then becomes easier to deal with.

7 Certainly, I don't think EPA would want to  
8 promulgate 316(b) standards that were looser for new  
9 plants than what the industry practice is.

10 So that might just be some investigative work  
11 that perhaps everyone at the table could promulgate.

12 MR. ELDER: Ed?

13 MR. RADLE: In the agenda that we received on  
14 August 27th, the introduction sentence or so indicates  
15 that EPA had not yet reached a decision -- I'm sorry,  
16 reached a definition of what adverse environmental  
17 impacts were.

18 We see that this is just about the same time  
19 it was reviewing draft NRC regulations, BG 405 as it  
20 goes to relicensing nuclear power plants. And they  
21 cite some of the Code of Federal Regulations that I'd  
22 like to share with you at this point in time.

23 They start out by defining impacts as small,  
24 moderate, and large, and then it goes on to mitigation  
25 of adverse effects. It doesn't define adverse effects,  
26 but it says, "When adverse environmental effects are  
27 identified, 10 CFR 51 requires consideration of

1 alternatives available for reducing or avoiding these  
2 adverse effects.

3 It goes on. Later it says, "Mitigation  
4 alternatives are to be considered, no matter how small  
5 the adverse impact. However, the extent of  
6 consideration should be proportionate to significance  
7 of the impact."

8 So I think that is speaking to -- killing  
9 fish is adverse, but it may not be hugely adverse. It  
10 may be a small adverse impact.

11 But that still leaves -- I was still not  
12 completely comfortable with that definition, so I  
13 dusted off an interagency 316(a) technical guidance  
14 manual dated May 1, 1977 (sic). This is an EPA  
15 document. It does define adverse.

16 "Adverse in aquatic environmental impacts  
17 occur whenever there will be damage as a result of --"  
18 this is 316(a), so it says "thermal discharges."

19 The critical question is the magnitude of any  
20 adverse impact. I propose that we set aside the debate  
21 about at what level we start the consider mitigation to  
22 killing fish and thinking about what you can do to  
23 reduce those numbers. You don't necessarily have to do  
24 a cooling tower to save each and every fish in the  
25 environment, but you have to consider all alternatives  
26 based on NRC draft regulations, prototype Federal  
27 regulations, and I think supported by EPA's 1977 (sic)

1 technical guidance manual.

2 MR. ELDER: Okay. Kristy?

3 MS. BULLEIT: Just a point of order before I  
4 make my comment. Are we going to get into the question  
5 of what is or isn't adverse at this meeting?

6 MR. ELDER: I was hoping we wouldn't go back  
7 to that, but it seems to be directly inherent in what  
8 we're talking about, particularly with Dennis' comment  
9 about, you know, what's the first order of business and  
10 then second order of business, and one kind of follows  
11 from the other, so it is natural to kind of go back to  
12 that.

13 MS. NAGLE: Kristy, the reason why I didn't  
14 want to go back to adverse environmental impact,  
15 obviously we spent a lot of time back in June  
16 discussing it, and we haven't really taken all the  
17 comments and thoroughly evaluated them and see where we  
18 might want to go with how to define adverse  
19 environmental impacts.

20 We know that's on the table. We just wanted  
21 to look at the other pieces that kind of fall in line  
22 behind it, with the understanding that yes, best  
23 technology available is directly related to that  
24 adverse environmental impact. But we wanted to try to  
25 get through these other issues at this public meeting,  
26 and then I think we'll -- you know, eventually we'll  
27 probably have something that puts all of them together

1 on the same plate.

2 MS. BULLEIT: Well, I'll just say then, by  
3 way of preamble that what we said at the last meeting  
4 still stands. We think adverse doesn't mean any  
5 effect. The things that you quoted when I listened to  
6 them sounded like they would be essential to that.  
7 There has to be something more than any impact. There  
8 has to be damage -- small, medium, or large.

9 So I think that what you put in was  
10 dispositive of that. We set forth in exhaustive detail  
11 at the last meeting in our comments how we think we  
12 foresee it, but I won't belabor that.

13 From what is precluded is that we all agree  
14 that 316(b) requires that the Agency look at the  
15 design, location, construction, and capacity of cooling  
16 water intake structures to minimize adverse  
17 environmental impact, whatever that is.

18 In that sense, 316(b) is unique, and the  
19 Agency, in order to be discharged from 316(b), has to  
20 make sure that whatever process or rule it comes up  
21 with does that.

22 The discussions that we have had today  
23 suggest, at least to me, that has to be done site-  
24 specifically, since it's the only way that you can make  
25 sure that the technology you select will, in fact,  
26 minimize adverse environmental impact overall for the  
27 environment, as a whole.

1           The act doesn't say minimize entrainment or  
2           impingement of certain organisms. It says minimize  
3           environmental impact. And the technologies that I'm  
4           familiar with can have pros and cons.

5           One of the things that we talked about is  
6           cooling towers, and I'll say again the Agency has  
7           always said -- they've said it in legal opinions and  
8           they've said it in other contexts -- has acknowledged  
9           that cooling towers are not part of the intake  
10          structure, and, for better or for worse, whether you  
11          like it or not, that's what Congress chose to focus on  
12          -- the clean water intake structure.

13          If you want to use the effluent guidelines  
14          analogy, I don't think it is directly applicable;  
15          otherwise, why have a 316(b) or a whole separate  
16          section?

17          But if you want to use that analogy and the  
18          Agency establishes it and looks at technology and  
19          decides how they can perform and the cooling tower is a  
20          part of cooling water intake structure, then how can  
21          you say you can establish cooling water intake  
22          structure technology requirements based on a component  
23          of a facility that is not part of the structure?  
24          That's hard to understand that.

25          Beyond that, there has been a lot of argument  
26          about why cooling towers are the best technology  
27          available, and I think that there are a lot of aspects

1 of cooling towers that need to be evaluated in order to  
2 determine whether they really are best. Even if they  
3 aren't, they have huge energy penalties. I think that  
4 was discussed.

5 So concern about the rational energy policy  
6 and concern about the ability to produce megawatts for  
7 cooling towers, especially for existing plants, extract  
8 enormous energy, both by way of derating and by way of  
9 diversion power to operate.

10 They produce large evaporation losses. That  
11 can be an environmental affect in and of itself. They  
12 produce solid waste. They produce drift.

13 Now, there are ways to deal with all these  
14 things, but they have environmental impacts of their  
15 own and they are not extremely popular.

16 Argonne did a study back in 1992, and just  
17 for a subset of the retrofit of cooling towers at  
18 existing facilities, for just one component of the  
19 industry it would cost you somewhere between, I think,  
20 32 and 54 billion dollars in 1992 dollars.

21 So all those things have to be considered.

22 MR. ELDER: Okay. John?

23 MR. VEIL: I'd like to follow up a bit on  
24 what Kristy said.

25 MR. ELDER: What a segue.

26 MR. VEIL: Yes. Thank you for that lead-in.

27 What we're trying to do with 316(b) is to

1 minimize the adverse environmental impact, and clearly  
2 cooling towers can do a reasonably good job at reducing  
3 the impingement and entrainment impacts. That's not a  
4 question today.

5 But, as Kristy pointed out, there are other  
6 adverse environmental impacts that could be associated  
7 with installation of cooling towers at existing plants.

8 Kristy talked about the cost. I'm going to  
9 give you some figures that come out of a series of  
10 reports. By the way, I'll be happy to make these  
11 available to folks if they see me during the breaks.

12 There is a phenomenon known as energy  
13 penalty. If you put a cooling tower onto a plant that  
14 was designed for once-through cooling, it takes a  
15 little bit more energy to pump the water through that  
16 type of plant. Studies have indicated that for fossil  
17 fuel plants that ranges for one to two-and-a-half  
18 percent of the total energy at that plant; for nuclear  
19 plants, one through 5.8 percent.

20 In some work done by someone at DOE, assuming  
21 only one percent energy penalty, he estimated that  
22 there would be -- if you converted every once-through  
23 cooling system in the country to cooling towers, you  
24 would have an additional 11.2 million tons per year of  
25 carbon dioxide generated.

26 Secondly, on the water evaporation, there  
27 would be an additional evaporation of 3.6 million

1 gallons per minute. To put that in context, that's  
2 roughly two-thirds the flow of the Potomac River right  
3 outside of Washington. Those of you who drove over  
4 that this morning know that's an awfully large body of  
5 water.

6 And, finally, in order to make up that energy  
7 penalty, you're going to have to go out and extract new  
8 energy from the ground, whether it's coal, oil, natural  
9 gas, and there are certain adverse environmental  
10 impacts associated with that.

11 So, in considering total adverse  
12 environmental impacts, you need to look at those  
13 effects, as well as the impingement and entrainment.

14 MR. ELDER: Yes, sir?

15 MALE VOICE: [Off microphone, mostly  
16 inaudible.] A large number of these facilities were  
17 constructed in the 1980s. They were built at  
18 manufacturing facilities that were on municipal water  
19 supplies. These power plants were small in order of  
20 magnitude. The water demand was much lower and they  
21 didn't have the water available. The other interesting  
22 point is that they were guaranteed six cents per  
23 kilowatt hour that's about double what our generation  
24 network costs were at that time. We were obligated to  
25 buy that power. There is a large demand of chemicals  
26 that have to be added to them [inaudible], which also  
27 have an impact. That needs to be taken into

1 consideration.

2 I don't think we can just continue to keep on  
3 looking at cooling towers [inaudible]. There's other  
4 technologies out there that numerous agencies have  
5 approved.

6 MR. ELDER: Okay. Bill?

7 MR. WEMHOFF: Thank you.

8 I wanted to just get back to the idea of the  
9 national standard, whether it be for new sources or for  
10 existing sources, and just raise the point that I think  
11 when we talk about, you know, a single technology that  
12 applies across the board to, you know, thinking of  
13 power plants representing a number of small municipals  
14 that own small generating sources, there is a danger in  
15 setting a single technology to apply across the board  
16 in that it may have some effects that are not fully  
17 intended when you just look at reducing things like  
18 impingement of fish or entrainment, you know, things of  
19 that nature.

20 What I'm talking about is there may be  
21 economy of scale considerations that would have the  
22 effect of driving the industry to large, centralized  
23 plants, as opposed to distributed generation. I think  
24 there is a lot of benefit in having distributed  
25 generation, but, in the new environment of competition  
26 in the industry, plants need to be competitive.

27 And if we're putting in technologies that

1 drive the industry towards large baseload plants or  
2 large generating facilities, then you lose things from  
3 distributed generation that I think are very beneficial  
4 -- things like reliability, emergency generation during  
5 instances like when hurricanes come through, things  
6 like that.

7 And the gentleman over here was talking about  
8 energy penalties in putting on certain technologies.  
9 If you lose the benefits of distributed generation, one  
10 of the things that happens is that you now have losses  
11 through step-up and step-down transformers, you have  
12 losses over the transmission system that you need to  
13 think about, and so if you have just large central  
14 stations, as opposed to distributed generation, you  
15 then have adverse impacts from increasing the size of  
16 the transmission system, you know, to be able to  
17 distribute power.

18 So there are a lot of things that I think  
19 need to be thought about other than just drawing a box  
20 around the intake structure and looking at fish. There  
21 are a lot of other environmental considerations that I  
22 think need to be looked at when you're thinking about a  
23 single technology that you apply across the board.

24 MR. ELDER: Okay. Jim?

25 MR. STINE: I think it would probably be  
26 useful at this point -- our time is slipping away -- to  
27 maybe talk a little bit about the alternative to

1 setting a national standard for selecting a BTA.

2 Again, it is -- we thought about it in terms  
3 of a very logical process and taking a close look at it  
4 as a risk management exercise where you're trying to  
5 find out where the problems really are existing, and I  
6 hope we focus in on those as the basis of the adverse  
7 environmental impact approach that we have talked  
8 about.

9 And then, once you -- so that means that you  
10 don't at every site necessarily need to screen all the  
11 technologies. Hopefully you understood which sites  
12 need attention and which ones don't.

13 But then when you do get to the sites that  
14 need attention, I think it is a very logical process  
15 and one that Ned just walked through, and I think what  
16 EPA should be thinking about is not what national  
17 standard do I need to set, but how do I encode a  
18 process to see that this is done in a logical, uniform  
19 process, you know, across the nation.

20 And the process is, again, very logical,  
21 looking at the technologies that would apply to  
22 absolutely considering cost and presenting that with a  
23 statute that requires that, and then understanding how  
24 the different technologies would apply at that  
25 particular site, whether they would be effective, what  
26 their cost would be, and sort them out.

27 And at the end of that process, when the

1 regulator agrees that you've properly identified the  
2 right technology, then that becomes BTA, subject to  
3 public review going over that, and this looks forward  
4 to the next sessions. If there are problems in  
5 identifying technology at that point, the team may want  
6 to take another look and get some more information, and  
7 that can be used to help in that decision.

8 I think that's the way the EPA should do it.

9 MR. ELDER: Next is Rich Bozec from Edison  
10 Electric Institute.

11 MR. BOZEC: Thanks.

12 Building on, I guess, really everything that  
13 has been said, I'd like to, as Dennis did, make an  
14 observation. A public policy observation, at least the  
15 way I look at it, is to answer the question first off  
16 really short is no, I don't think so, and EEI members  
17 don't believe that there is a single BTA technology  
18 that you can put across on a national basis or water  
19 body basis, for many of the reasons that were stated  
20 here.

21 But inherent in the question, I'm sure, is  
22 the discussion or something that we all could agree on.  
23 We're looking to do something effective and efficient.  
24 We have also got a situation where we have an  
25 interaction between animal environment and a human  
26 endeavor, and I just can't get my mind off of -- as  
27 trained in biology, I'm hard-pressed to think of a

1 situation where there has been an interaction between  
2 human endeavor and animal populations where we have  
3 made a decision, a public policy decision, to institute  
4 one single method to deal with it, and we've been  
5 efficient and effective.

6 I just caution us all that I can't think of  
7 any examples, and if there are examples out there, I'm  
8 sure they are few and far between. Let's not make the  
9 same mistake again.

10 MR. ELDER: Okay. I want to go with Theresa  
11 first.

12 MS. HANCZOR: Yes. A few things.

13 Getting back to what is adverse environmental  
14 impact, the Agency has said early on that, as Ed  
15 pointed out from the guidance manual in 1977, any  
16 impact, no matter how small is adverse. And  
17 specifically, in the Brunswick decision, "The major  
18 adverse environmental impact of cooling intake  
19 structures are those affecting aquatic organisms living  
20 in the volumes of water withdrawn through the intake  
21 structure."

22 So EPA has clearly said that adverse  
23 environmental impacts, which 316(b) is trying to  
24 minimize, are impingement and entrainment of fish, not  
25 the larger population impacts.

26 Secondly, with regard to something Kristy  
27 said that cooling towers are not part of the intake

1 structure, the mandate of 316(b) says that the  
2 location, design, construction, and capacity shall  
3 reflect BTA.

4 Now, how do you -- what thing controls  
5 capacity? Well, the thing that controls capacity is  
6 the thing that has to do with the water withdrawn, and  
7 if some thing can withdraw 98 percent less water, I  
8 would submit that thing is a technology and it is part  
9 of the intake structure because it is part of the  
10 capacity-determining factor.

11 In terms of what people have been saying that  
12 cooling towers have bad impact in terms of drift and  
13 that they will add cost to the consumer, what is going  
14 on here is a refocusing of the debate as to, instead of  
15 asking what is BTA, the utilities are saying why not to  
16 use BTA, and if they feel that cooling towers are so  
17 harmful to the environment, then I suggest that they  
18 come up with something that meets the same performance  
19 of cooling towers, that is, that reduces inflow by 98  
20 percent.

21 The burden is not on the environmental  
22 community; the burden is not even on EPA; the burden is  
23 on the utilities to come up with technologies to reach  
24 that performance standard.

25 Finally, as to site specificity, we need  
26 uniform standards, and, again, the discussion has been  
27 shifted. How do you pick a technology for each

1 specific site, estuarine or fresh water?

2 And if we first establish BTA, a performance  
3 standard, and apply those standards to each specific  
4 site, then, again, it is up to the facility to come up  
5 with a technology that can reach that standard.

6 MR. ELDER: Okay. Thank you.

7 Anyone else? Kit, would you mind? Richard  
8 had his hand up before.

9 Richard, keep it short.

10 MR. DELGADO: Okay. Being a technical  
11 person, I couldn't resist making a technical comment on  
12 the way that a cooling water intake structure  
13 limitation, based on cooling towers, should be put in  
14 the permit if that's what you're designating it as BTA  
15 is to restrict flow. I would be reluctant to write a  
16 permit that said you'd put in a circulating cooling  
17 tower. I might designate that as the basis for the  
18 limitation, but I think it is appropriate to try to  
19 have performance type of standards, rather than  
20 designating technology. Where we can, anyway, I think  
21 you should be thinking of the performance standard.

22 I also couldn't help but notice a lot of  
23 comments on cost. I probably instigated some of them.  
24 I assume that you'd prefer, like I would, to talk about  
25 costs in the afternoon session?

26 MR. ELDER: Yes.

27 MR. DELGADO: Thank you very much.

1 MR. ELDER: Kit?

2 MS. KENNEDY: Just a few thoughts on the  
3 inter-relationship between this problem and the opening  
4 of the utility industry to competition, which people  
5 referred to.

6 When I said earlier that plants which are  
7 being built now by independent power producers are  
8 incorporating cooling towers as a matter of practice, I  
9 was not referring to plants built through the 1980s,  
10 qualifying facilities under PURPA. I'm talking about  
11 independent power producers who today, in a competitive  
12 environment, are making the decision to employ that  
13 type of technology.

14 As Bill said, they're getting their plants  
15 approved and built quickly because they're avoiding  
16 prolonged hashing out of these issues simply by  
17 eliminating the problem. I think that's an example  
18 that we should look to.

19 In terms of distributed generation, I think  
20 environmentalists would agree with you that distributed  
21 generation is important, but when we talk about  
22 distributed generation we're talking about inherently  
23 clean technologies like fuel cells, photovoltaics,  
24 micro-turbines, very small plants which will have  
25 either little or no impact in terms of cooling water  
26 intake.

27 So I agree with you distributed generation is

1 the way to go to avoid losses in the distribution  
2 system, but I think I may disagree with you about the  
3 definition of distributed generation and whether any of  
4 the utility plants that we're talking about fall into  
5 that category.

6 The key, in terms of competition, making  
7 electric competition work, is to have a level playing  
8 field in terms of environmental rules. You know,  
9 something that a lot of utilities in the northeast are  
10 concerned about is if they are subject to stricter  
11 rules than utilities in the midwest there will be  
12 inequities that will lead to more pollution, and that  
13 discussion is mostly in the context of air pollution.

14 But, again, I think uniform standards make  
15 sense nationally, where we're going to have a situation  
16 where utilities or power plants in one part of the  
17 country are going to be subject to less strict 316(b)  
18 requirements than utilities in other parts of the  
19 country, and that really makes a distortion and creates  
20 extra values that the EPA should be seeking to avoid.

21 Just going back to the list of technologies  
22 which you put up on the screen, one that should be on  
23 there and is not already is a technique which the  
24 plants on the Hudson are using now, which is doing  
25 planned outages at particularly critical seasons for  
26 fish populations. This system has its pros and cons,  
27 but it is definitely a technology or operational

1 practice which has the -- can have an impact on  
2 technology and I'd urge you to put that up on the list.

3 MR. ELDER: Okay. Kristy?

4 MS. BULLEIT: I think it is laudable that  
5 everybody is concerned about competitiveness of  
6 electric utility facilities and utility companies, but  
7 I can say unequivocally that the folks that I represent  
8 are equally concerned about the impact of 316(b), and  
9 they believe that the best way to ensure an even  
10 playing field in fairness overall is to have a  
11 consistent process that allows for a site-specific  
12 determination of the situation.

13 I also think that it is the only way to  
14 implement -- to give full meaning to both the spirit  
15 and the letter of the statute, just from both  
16 biological and their point of view. It isn't clear to  
17 me that you can be sure that you truly minimize adverse  
18 environmental impacts overall unless you do it on a  
19 site-specific basis, based on the various factors that  
20 others have talked about and the fact that, unlike a  
21 pollutant, the electric utility doesn't control what is  
22 being regulated. We're talking about the interaction  
23 between the facility and the environment that can be  
24 affected by any number of factors that can be  
25 infinitely various.

26 On this subject of what is and isn't part of  
27 the intake structure, I don't think it is overly narrow

1 to say that when Congress said cooling water intake  
2 structure that's what it meant, and when it said  
3 technology -- and this is the point that others have  
4 made -- certainly we want to remain faithful to the  
5 language of the statute.

6 Congress talked about the design,  
7 construction, location, and capacity of the cooling  
8 water intake structure minimizing adverse environmental  
9 impact. And there's more than a -- that's more than a  
10 technical, legal hook, because, as a practical matter,  
11 you're beyond that. You're really looking at the  
12 facility as a whole and there is nothing in 316(b) that  
13 suggests that Congress intended EPA to decide to turn  
14 the lights on or turn the facility on or off.

15 There is no precedent on the process, as a  
16 whole, and there is certainly no precedent for 316(b).  
17 Congress wanted to focus on cooling water intake  
18 structure technologies, and the technologies relating  
19 to capacity also have to be related to the intake  
20 structure, not to the facility, as a whole.

21 MR. ELDER: Okay.

22 MR. STINE: May I just quickly follow on?

23 I can just say, as far as capacity goes, when  
24 I first read the meaning of the statute I said, "What  
25 do they mean by capacity," because they're talking  
26 about cooling water intake structures. And the  
27 interpretation that seemed obvious to me was it's the

1 size of the cooling water intake structure, and you're  
2 working with a given amount of flow, and the capacity  
3 of that intake structure will control how fast that  
4 water moves in.

5 Congress probably didn't want to have cooling  
6 water intake structures that were so small that the  
7 intake flow velocities would be very high, therefore  
8 causing environmental impact.

9 I mean, given there are other possible  
10 interpretations, I would submit, when Congress wrote  
11 the law. But I don't think there is one simple  
12 interpretation of what they meant by capacity, and that  
13 meant the amount of water coming through. I think it  
14 may very well have been the size of the intake  
15 structure, itself, and its effect on the flow velocity.

16 MR. ELDER: Okay. Libby?

17 MS.FORD: I don't want to keep passing myself  
18 off as a scholar of the Clean Water Act, but we need to  
19 also look at the difference in the language between  
20 316(a) and (b) in terms of determining this adverse  
21 impact.

22 The formal section of 316 is very specific to  
23 aquatic impact. It's the protection of the indigenous  
24 population. The 316(b) impact language is a much  
25 broader term, "adverse environmental impact." So I  
26 think the comments that have said when you're looking  
27 at trying to set a BTA determination, you need to look

1 at the entire environment, including the secondary and  
2 the tertiary impacts, not just the impacts on the  
3 indigenous or the aquatic population.

4 MR. ELDER: All right. Now Bill?

5 MR. SARBELLO: I'd just like the offer  
6 another way of looking at things, and that is that the  
7 goal of the Clean Water Act is to restore the chemical,  
8 physical, and biological integrity of the nation's  
9 waters. Its goal was also to result in zero discharge  
10 ultimately.

11 I think why there is a section that deals  
12 with cooling water intakes is that there are  
13 technologies that could result in zero intake and zero  
14 discharge of the pollutant heat to the water of the  
15 United States. And in that context, it makes a lot of  
16 sense that you reduce the water capacity of these  
17 facilities and thereby reduce their overall impacts.

18 Just to jump back to the issue of  
19 evaporation, when you discharge heat into the water,  
20 hot water still evaporates, whether it is in the  
21 cooling tower or whether it is discharged as a sheet on  
22 top of cold water, you still have the evaporative loss.  
23 You're still rejecting heat.

24 In that context, the whole system of reducing  
25 -- heading towards zero discharge as much as possible  
26 makes a lot of sense that you reduce the capacity  
27 though such consideration of such alternatives as

1 cooling towards as an element of the capacity of the  
2 intake and as an element of the permit.

3 MR. ELDER: Okay. Maya?

4 MS. VANROSSUM: First, I think that that is a  
5 very interesting, well-spoken, well-stated, great  
6 argument that you should be taking into consideration  
7 this whole process. Very well said.

8 I just want to go back quickly. I was going  
9 to leave it alone, because Theresa handled it so  
10 beautifully after Kristy had spoken, but I just feel  
11 the need to speak up for a moment.

12 In terms of the adverse impacts of the  
13 technology, it is clear from the language of the  
14 statute, it is clear from the history of the processes  
15 or the decisions surrounding the section of the statute  
16 that we're looking to address or to minimize the  
17 specific harms being put on the system by a facility.

18 I'm particularly concerned about the argument  
19 coming up by Kristy and by others that, well, we can  
20 use this segment of the statute or we can honor and  
21 fulfill this requirement of the statute by improving  
22 the overall health of the waterway, because that  
23 argument is being used to support tomorrow's topic,  
24 which is use of mitigation as a technological method  
25 for fulfilling that part of or these requirements of  
26 the statute.

27 So I'd just reiterate it is very important

1 that the adverse impact that -- address the specific  
2 harm, not to improve the overall health of the  
3 waterway. The way you do that, the way the statute  
4 intends that, the health of the waterway is by dealing  
5 with the harm that this facility is contributing to the  
6 system, which is usually impingement and entrainment,  
7 and, to the extent that they're contributing other  
8 harms, as well, then the technology that's chosen  
9 should also address those specific harms. That's how  
10 we get at the environmental health of the system.

11 Again, I think that's a very important point  
12 that needs to be recognized and put into that process.

13 MR. ELDER: Okay. Kent?

14 MR. ZAMMIT: I would like to -- we've been  
15 working with members for a long time on all different  
16 problems related to 316(b) and actually 316(a), too,  
17 and I'd like to just say that, in our experience,  
18 EPRI's experience, it is a very site-specific issue,  
19 and I think you're kind of hinting about that, too,  
20 with your arguments, Maya, that, depending on what  
21 those impacts are, the technologies may need to be  
22 varied to address those particular impacts.

23 We are working right now with a member who is  
24 trying to renew a permit where they are taking, as Bill  
25 mentioned, groundwater, running it through cooling  
26 towers, and trying to discharge it to a river, and the  
27 associated problems are immense. I mean, cooling

1 towers aren't a panacea. They are -- they have  
2 associated impacts, also.

3 When you concentrate the cooling water, you  
4 run into higher salinities. If your facility doesn't  
5 have land space to be able to go to zero discharge,  
6 then you have to develop methods to be able to manage  
7 your wastewater discharges from a cooling tower.

8 Any technology that you look at may be  
9 applicable to one site perfectly. As another example,  
10 barrier nets. You may be able to put them on one site  
11 and have very, very good performance values from those  
12 barrier nets, but you try and apply them to another  
13 site and you can't keep the things in place because of  
14 problems with the location of the cooling water intake  
15 or conditions in the water body, itself -- debris  
16 loading, whatever else.

17 And so I would support the comments that have  
18 been made around this table that these technologies do  
19 have very strong site-specific characteristics in both  
20 performance, application, ability, and cost.

21 The development of a national standard, if I  
22 were sitting here with a piece of, you know, blank  
23 paper, I just would have a really hard time developing  
24 a national standard applicable all the way across all  
25 plants.

26 MS. NAGLE: Okay. I'd like to take this time  
27 now to move on to the last issue that I had presented

1 earlier, and that is the techniques and criteria that  
2 we might use to measure the efficacy of technologies,  
3 and in that context the -- you know, looking at the  
4 performance measures that might be used.

5 MR. ELDER: Okay. Jim?

6 MR. STINE: I think certainly -- well, again,  
7 I'm coming at it more from the presumption that we've  
8 focused on a problem, identified what the cause of the  
9 problem is, and then decided what makes sense at this  
10 particular site.

11 Having done that, certainly there -- I can  
12 imagine there are different measurements that would be  
13 specific to cooling water intake system, itself, that  
14 you could identify to determine how effective  
15 installation of that technology has been, fixed amounts  
16 of entrainment or impingement, something like that.  
17 That certainly might make sense.

18 Now, I think it is also appropriate at  
19 reasonable intervals to again ask the question, Is the  
20 cooling water intake system having adverse  
21 environmental impact, and again look at that on a  
22 population level.

23 But I think designing a performance standard  
24 that would essentially be or require ongoing population  
25 level type of analysis, there are just too many  
26 variables and factors that you'd need to keep track of  
27 to have that work as a performance standard, something

1 that you would look at on a regular basis.

2 So I think if you're talking in terms of,  
3 once they've installed the technology, how we're going  
4 to make sure it's working, I think in that case you  
5 need to look at the factors that are directly affected  
6 by cooling water intake system, realizing that you  
7 still have the fall-back like the permit cycle to  
8 revisit whether adverse environmental impact has been  
9 effectively addressed.

10 MR. ELDER: Okay. Before I recognize Maya,  
11 is there a Mary Dominick here?

12 (No response.)

13 MR. ELDER: Okay. Maya?

14 MS. VANROSSUM: I'm not going to presume to  
15 answer any specific question. Recognizing, of course,  
16 if you use a proven technology -- proven in terms of  
17 history at a facility -- and continue to measure the  
18 performance and make sure it is being effective for the  
19 next permit go-round, that being said, my question is  
20 on the Delaware we have a facility where one of the  
21 primary methods for fulfilling the EPA obligation was  
22 to use a very experimental, as I understood it at that  
23 time, very experimental approach to the issue, just  
24 using noise to scare fish away, and at the time there  
25 was information that was a preliminary experimental  
26 technology.

27 So sort of the question that's jumping around

1 in my mind is, when we're talking about mentioning the  
2 efficacy -- and it's something that I was thinking of  
3 earlier, and this seems to be the place to put it in --  
4 are to what extent would the EPA, the regulation,  
5 whatever, allow for use of experimental -- very  
6 preliminary experimental technologies as opposed to  
7 tried and true technologies?

8 And I would suggest that you shouldn't do  
9 that, at least never alone. I mean, use the tried and  
10 true and, to the extent you require some experimental  
11 in addition for future research, fine, but not alone.

12 And I guess, again, this would be the place  
13 to throw this in. Does that factor into this anywhere,  
14 either of these questions or your thinking on the  
15 issue?

16 MS. NAGLE: Actually, I don't think we've  
17 thought about experimental-type technology and how it  
18 would play into it.

19 MS. VANROSSUM: Okay. We've had very bad  
20 experience with it on the Delaware as a result of very  
21 experimental technology being used to fulfill the  
22 requirements of BTA.

23 MR. ELDER: Was that the only technology that  
24 they employed?

25 MS. VANROSSUM: Well, the other technology  
26 they employed was to reduce their cooling water intake  
27 to the -- from the permit limit down to the limit that

1 they were actually drawing in on a daily basis anyway.  
2 So, while there was supposedly a capacity limitation,  
3 the reality is there was no capacity limitation. And  
4 then, in addition to that, there was a [inaudible].

5 And then the big thing was mitigation. That  
6 was the big sell point. And while technically that was  
7 not a BTA according to the permit, that was a big sell  
8 point.

9 So it was a little bit confusing, but I guess  
10 the short answer is, as far as we're concerned, no.

11 MR. ELDER: Okay. All right. Ned?

12 MR. TAFT: I just have a comment about  
13 experimental technologies. There was a lot of research  
14 going on up through the mid-80s when basically the big  
15 surge in power plant construction ended, and a lot of  
16 that research ended. And since that time, there have  
17 been new technologies that have come along that are  
18 experimental. There are other ones that were looking  
19 promising but haven't been implemented just because the  
20 focus has kind of been off of a lot of these things for  
21 a while.

22 I realize I may have a little self-serving  
23 purpose since I do research, but I think there is room  
24 for some additional research. I think if we just say  
25 what we have is what we have and go with it, we're  
26 never going to progress in anything. It's just like  
27 anything -- you've got to keep asking questions,

1 pursuing.

2           There are some technologies that I believe  
3 could solve both impingement and entrainment problems.  
4 They may be size-limited, capacity-limited, whatever,  
5 but they haven't been fully evaluated. And I'm not  
6 proposing a big research project; I'm just saying I  
7 think experimental technologies need to be at least  
8 given some consideration in how the EPA progresses.

9           MR. ELDER: Kit?

10           MS. KENNEDY: Just going to this question of  
11 how you measure performance, I think --

12           MR. ELDER: Good.

13                   (Laughter.)

14           MS. KENNEDY: I think I'd urge you to stay  
15 away from performance measures like 10 percent of the  
16 standard population of blue crab, because it is so  
17 difficult to reach those determinations.

18           I think what we're hearing perhaps from all  
19 of the environmentalists here is that the key criteria  
20 for reducing certainly entrainment and probably  
21 impingement, too, is to reduce the flow of water into  
22 the plant.

23           So I think the performance standard should be  
24 based on that, that the technology should -- and then,  
25 if you use cooling towers as the technology at least to  
26 set the performance standard, your cooling towers can  
27 reduce flow into the plant by 95 percent, you know, a

1 very high number, and that should be a performance  
2 standard.

3 Also, going back to the discussion about kind  
4 of technology standards versus performance standards, I  
5 don't think we're opposed to performance standards that  
6 are based on measurable performance of a particular  
7 technology. This goes back to something that Bill from  
8 DEC also said.

9 We're not saying apply cooling tower  
10 technologies but look for something that can achieve  
11 that performance or can achieve that 95 percent  
12 reduction in inflow through operational measures or  
13 whatever technology, and that works better than a  
14 cooling tower. Fine. It's the reduction in flow that,  
15 from our point of view, is the key.

16 MR. ELDER: Equivalent performance.

17 MS. KENNEDY: Exactly.

18 MR. ELDER: Ed?

19 MR. RADLE: I would support, if not a body  
20 count, at least something that translates the actual  
21 mortality into a future life stage, but caution against  
22 getting into the population level because that's such a  
23 difficult issue.

24 On the Hudson River, the utilities and the  
25 department and environmental groups have developed a  
26 conditional mortality rate that translates mortality  
27 from the early life stages into the younger year

1 juveniles in the fall, and that at least doesn't get  
2 into the issues of compensation and some of these other  
3 very intractable ways of trying to understand the  
4 results.

5 But if you compare either numbers of eggs and  
6 larvae or the condition mortality rate between this  
7 technology and that, I think you'll have a reasonable  
8 basis for comparing the effectiveness of the  
9 technology.

10 I'd like to comment on, in terms of the  
11 advancing technology or the use of experimental  
12 technology, I believe New York State utilities have  
13 done an enormous amount of work and done a lot of good  
14 work in terms of developing advanced technologies, and  
15 if you don't provide for that, basically you've got  
16 technology that came off the ark. It's an empty  
17 promise if we're going to use the best available  
18 technology and the best available is something that,  
19 you know, has been around for 100 years.

20 So I think there is a place for experimental  
21 technology and I think the point is that you don't  
22 install this best technology until -- you don't accept  
23 it as a regulatory agency until it has shown what it  
24 can do. It's appropriate to do the experimental work,  
25 but if you just put it in and walk away and you don't  
26 have an idea whether it's effective or not, that's  
27 foolish.

1           So one thing I would encourage you today is  
2 to make provisions in the regulations to continue to  
3 encourage development of advanced technology. I think  
4 there are a lot of things they're being experimental  
5 with now, and I disagree with Ned to a degree -- I  
6 think New York utilities did not drop the ball in the  
7 mid '80s. That work continues, at least in New York.

8           One final comment. In terms of the  
9 performance measure, in terms of 10 percent of the  
10 standing stock of blue crab, New York objects to any  
11 allocation of resource on percentage. The goal is  
12 zero, and we work towards that goal, not towards some  
13 artificial number that -- I mean, 10 percent is okay,  
14 or if you kill 10 percent it's not? No. Is that the  
15 best you can do today? All right. We'll accept that  
16 today and work towards tomorrow.

17           MR. ELDER: Okay. Jim?

18           MR. STINE: Yeah. I just think that a  
19 performance standard that is based on flow or flow  
20 reduction would just be incredibly wasteful, and I  
21 really think that's the bottom line.

22           There are facilities. We're not writing  
23 rules just for the Hudson River; we're writing a rule  
24 that is going to have to apply across the country.  
25 There are a variety of locations in this country where  
26 the impact of the cooling water system is already being  
27 properly controlled. To then say that you won't need

1 to reduce your cooling water flow for -- and that's not  
2 cheap. I'm talking on behalf of my members that are  
3 going to have to bite that bullet. And who around the  
4 table is going to pay for it? What makes sense for the  
5 system?

6 I think what makes sense for the system is to  
7 find out where there are problems and go at it on a  
8 site-specific basis.

9 MR. ELDER: Yes, sir?

10 MR. VON JENNA: My name is Stephan Von Jenna.  
11 I have a question regarding --

12 MR. ELDER: Stephan, would you please go to  
13 the mic?

14 MR. VON JENNA: My only question regarding  
15 the site-specific analysis would be, as waterways  
16 evolve and change in life cycles of power plants, if  
17 you set a site-specific solution for a variety of  
18 species on that waterway and that time cycle of that  
19 waterway, what happens 10, 20, 30 years from now? If  
20 you design a burst system, Johnson screen type intake  
21 structure, which has minimal impact to that environment  
22 at that time, what happens 20 years from now?

23 I think there needs to be some flexibility of  
24 that site-specific analysis, as well as the use of a  
25 natural standard to make a mechanism that allows for  
26 some flexibility.

27 MR. ELDER: Jim, discuss this.

1 MR. STINE: Perhaps you were not at the  
2 previous meeting, but the approaches we suggested  
3 envision a consideration of the adverse environmental  
4 impact, and that's going to be done on a repetitive  
5 basis, on a permit renewal basis. The permit lasts  
6 five years. There is no guarantee that what was  
7 existing at that point will carry through. It may.  
8 Certainly if you gather a lot of information you don't  
9 need to go back to square one. You can move forward.  
10 But that information may need to be ground truthed  
11 again at the next permit cycle.

12 But I don't think there is any suggestion  
13 that you would expect to be locked in a particular  
14 technology decision going into the future.

15 MR. ELDER: Ed?

16 MR. RADLE: I agree. There's an obligatory  
17 five-year commitment of the permit issued for a period  
18 not to exceed five years. The regulatory is obliged to  
19 go back and reevaluate the technology of that decision  
20 and see whether it is still suitable, so that's part of  
21 the process. It is built into the process.

22 MR. ELDER: Richard second, but let me get --

23 MR. BOZEC: I just wanted to ask a quick  
24 point of clarification from Kit, and maybe Theresa, who  
25 also mentioned it.

26 When you were discussing flow and the  
27 equivalent performance of different technology to that

1 of cooling towers, you did focus on flow, and by  
2 focusing on it I can only kind of come to the  
3 conclusion that you're saying that flow is the single  
4 determinant of cause of adverse environmental impact.  
5 Is that --

6 MS. KENNEDY: In terms of entrainment -- I  
7 mean, we had a bit of a discussion earlier -- certainly  
8 flow appears to be the critical problem. So if you  
9 reduce the flow, then you reduce the intake of  
10 organisms into the plant.

11 If there are studies to the contrary, we'd be  
12 glad to look at them, but that is my understanding of  
13 the situation.

14 In terms of impingement, it may be slightly  
15 different, but again if you have low flow and low-  
16 velocity flow you're going to be getting less organisms  
17 on the screen.

18 MR. BOZEC: Okay. I just wanted to get a  
19 clarification of your understanding of how I was  
20 interpreting what you were saying. Thanks.

21 MR. ELDER: Richard?

22 MR. DELGADO: I just wanted to point out that  
23 when we have standards for performance of discharge,  
24 usually those standards can have something in them  
25 called "fundamentally different factors variance," or  
26 FDF variance. I would certainly expect that if we have  
27 standards of performance for cooling water intake, I

1 think that is appropriate. It is appropriate to have  
2 some type of fundamental factors of variance in those  
3 standards, probably along the same lines as you see the  
4 effluent variance in effluent discharge limitations.

5 MR. ELDER: Okay. Ned? I had seen your hand  
6 before. Did you want to --

7 MR. TAFT: I think I'm going to pass on what  
8 I was going to say.

9 I guess I would hope that as EPA and your  
10 contractors are looking through all of this vast wealth  
11 of information -- and I know you are, and you can maybe  
12 perform some analysis that would demonstrate that what  
13 is being said about flow and velocity are, in fact,  
14 realities, because the data I've looked at, I don't see  
15 those relationships. So I just, you know, think that  
16 needs a long, hard look so there's a scientific basis  
17 for drawing these conclusions.

18 MS. KENNEDY: Can I just ask you a question,  
19 Ned? What do you think is the predeterminant in terms  
20 of reducing entrainment?

21 MR. ELDER: Excuse me.

22 (Laughter.)

23 MS. KENNEDY: Alright, I will raise my hand  
24 in due sequence.

25 MR. ELDER: Jim had had his hand up.

26 MR. STINE: I just wanted to respond to the  
27 suggestion that fundamentally different factors

1           variances might be the way to handle this. You can  
2           have regulation by fundamentally different factors  
3           variance if you were to try and use that approach.  
4           Each situation is going to be fundamentally different  
5           from the other. I've been trying to explain that all  
6           morning, based on the different water body  
7           characteristics and intake systems and biological  
8           situations. I think that if you're going to have the  
9           natural standards and then follow it up with  
10          fundamentally different factor, you'll make your  
11          natural standard [inaudible].

12                   MR. ELDER: Okay. Kit? You have a comment?

13                   MS. KENNEDY: Yes, I do.

14                   Again, I'd just be interested in knowing what  
15           you think the key determinant is in terms of reducing  
16           entrainment, and also which studies you're talking  
17           about.

18                   MR. TAFT: I don't want to get into -- I have  
19           stuff here. I don't want to get into it this morning.  
20           But I think certainly flow, as I said before, is  
21           obviously a factor, but I think, in terms of location  
22           of intake, you gain a lot there, and I think there are  
23           protection technologies that can be levels of  
24           protection that may even approach cooling towers.

25                   You have to then keep in mind, also, that  
26           there is a large -- there have been a lot of studies  
27           done on mortality of organisms through cooling water

1 systems that show that a lot of organisms, particularly  
2 when they're not near the entrance of [inaudible] going  
3 through the plant.

4 MS. KENNEDY: The equivalent technologies  
5 that you're talking about, I mean, we're talking about  
6 what they are or not.

7 MR. TAFT: Wedge wire screens, other screens.

8 MS. KENNEDY: To reduce entrainment?

9 MR. TAFT: Yes. In the right location.  
10 That's why I'm saying you need the right conditions to  
11 do that. That's why I keep coming back to site  
12 specificity. It's not going to work at every site, and  
13 I'm saying that's what you have to look at. There's a  
14 fairly large amount of data on which you can draw,  
15 historic data on which you can draw conclusions of what  
16 the range of potential effectiveness of a given system  
17 might be if you should use that. You should look at  
18 it. That's all I'm saying, on a site-by-site basis.

19 MR. ELDER: Maya first and Kristy second.

20 MS. VANROSSUM: I think that ultimately what  
21 we're trying to get at is that cooling towers, as we  
22 know, has the potential to reduce the adverse  
23 environmental impact [inaudible] by up to 98 percent.  
24 So 98 percent in terms of standard. If you can find  
25 another technology and achieve that goal, great.  
26 That's what we're saying.

27 And if you can't, put on the cooling towers

1 that will get you there or get you as close to there as  
2 possible.

3 MR. ELDER: Okay. Kristy?

4 MS. BULLEIT: Two things. First of all, I  
5 think some of the comments that have been made  
6 illustrate why it is so important to look at adverse  
7 environmental impact from a population point of view,  
8 because what study after study has shown is that you  
9 may, in fact, perhaps reduce entrainment mortality  
10 using a certain technology, but that may not make any  
11 or much of a difference to the underlying population  
12 and values that society attaches to them.

13 So I am hard pressed to understand why  
14 Congress would have wanted the Agency to decide to  
15 require the application of technologies that will not  
16 make a large amount of difference overall. That's one.

17 Two, people have advocated a national  
18 performance standard as the identification of a single  
19 technology determined to be BTA imposed on categories  
20 or subcategories of plants. I don't agree that it is  
21 possible or wise to do that, but I will say that that's  
22 what the Agency does following kind of an effluent  
23 guidelines model. It's not the case that that's  
24 revisited every permit renewal.

25 In fact, we're getting more environmental  
26 protection to employ a site-specific approach, which is  
27 then the Agency's rationale for going back and looking

1 at these things every five years and to look and see,  
2 in fact, if the intake is interacting with the  
3 environment, than to adopt a national standard that  
4 stays in place until you do another rule-making, which  
5 is exactly what happens.

6 MR. ELDER: Bart?

7 MR. RUITER: I keep on hearing this national  
8 standard, and I heard 98 percent removal. The majority  
9 of the cooling water intake discharges, as shown by the  
10 original slide shown by Deborah Nagle, is, if you look  
11 at them from a point source intake, is smaller  
12 discharges. If you are going to apply cooling water  
13 recycle requirements on them to get a 98 percent  
14 removal [inaudible], or whatever, on intake, or larvae,  
15 it just seems to be extreme to require that.

16 MR. ELDER: Bill?

17 MR. SARBELLO: Just to go back to the  
18 question of performance standards, I just wanted to  
19 reinforce what someone said earlier, which was that the  
20 total number of organisms killed, as expressed by  
21 species age class numbers, is a good performance  
22 measure, and that may be independent, in some cases, of  
23 the body of water. It may not. It depends on the  
24 situation.

25 If they're in an area where there is a lot of  
26 larvae, you will probably have a high entrainment  
27 proportionate to the body of water. If you're in a

1 place and location that your intake is in an area where  
2 the particular environment has very low numbers,  
3 entrainment may not be a large number. You may still  
4 be able to intake a large quantity of water and still  
5 have fairly low mortality numbers. So I think  
6 mortality is an important factor to measure.

7 For mortality, a good thing to measure is  
8 survival rates, and the reason why I discriminate  
9 between entrainment -- and you can chime in on this --  
10 is we believe that the volume is something that you can  
11 regulate and should regulate and do regulate.

12 For entrainment, sometimes it makes sense to  
13 use less water. If you're going to have a high  
14 mortality rate going into the plant at certain life  
15 stages, it may make more sense to use less water, i.e.,  
16 shut off the pump, use less water, discharge at a  
17 higher temperature. The net result is that the total  
18 number of organisms killed may be less in that scenario  
19 than operating on a full-volume scenario.

20 One thing that is in common is how many fish  
21 are getting killed. That's one way to compare between  
22 the different alternatives.

23 MR. ELDER: Theresa?

24 MS. HANCZOR: Yes. Two things.

25 We're not saying that cooling towers are the  
26 only way to go. We're saying that the performance  
27 which cooling towers tend to meet is that standard, 98

1 percent reduction. If the utilities can come up with  
2 something that meets that level, please tell us. If  
3 you're waiting over here for an answer, if you have  
4 something in your pocket, come forward with it.

5 Second, as to what Kristy said regarding  
6 population class versus the specific intake, she noted  
7 that earlier on the EPA had said that, in order to  
8 reduce the killing of fish eggs, larvae, fish, female  
9 fish, and other aquatic life going through the power  
10 plants and the killing of juveniles and adults -- that  
11 is both entrainment and impingement -- that closed-  
12 cycle cooling was required.

13 The EPA also took a position that the broader  
14 population impact was not relevant to 316(b). 316(a)  
15 talks about the protection and propagation of  
16 indigenous fish.

17 So their comments specifically said, when  
18 you're talking about thermal discharges, look at the  
19 population level. 316(b) just said minimize. And the  
20 EPA has said earlier that minimize means reduce to the  
21 lowest amount possible, and that when we talk about  
22 adverse impacts we don't have to look at a population  
23 or look at the site of the intake structures.

24 Lastly, someone mentioned a variance. 316(b)  
25 does not allow for any variance, unlike 316(a), which  
26 allows for variance where, if you can achieve the lower  
27 thermal discharges than what is described in the

1 permit, then you don't have to reach that level.

2 Again, 316(b) has no such variance in the  
3 clear statutory language.

4 MR. ELDER: We've got a host of hands. I saw  
5 Kristy first, and then that lady second.

6 MS. BULLEIT: I've read the old rules and  
7 preambles and development documents and guidance  
8 documents pretty carefully. I've never seen any of  
9 them refer to determination by EPA of cooling towers or  
10 BTA in adverse environmental impact. In fact, EPA's  
11 previous rules specifically adopted a site-specific  
12 determination.

13 In addition, I'll just say that the response  
14 to comments in the final rule -- in response to a  
15 comment that advocated that population measures be  
16 based on a set, specific rule, both numbers and  
17 population were relevant and had to be evaluated  
18 together. So I would just like to emphasize that the  
19 previous rule adopted exactly that approach.

20 MS. PERKINS: My name is Winifred Perkins.

21 I wanted to just make one point, and that has  
22 to do with perhaps illustrating the pitfalls of the  
23 national standards that you define as something like a  
24 cooling tower.

25 I happen to live in Florida. I work for a  
26 company that has a number of power plants which are  
27 frequented by manatees. Manatees are a very endangered

1 species, of which there are only 2,800 of them around  
2 the United States.

3 If cooling towers were to be mandated as a  
4 national standard in a situation like this, what you  
5 would basically find is the complete extinction of this  
6 endangered species, because that species has come to  
7 rely 100 percent of its survival on manmade instead of  
8 natural warmwater discharge. Cooling towers would  
9 eliminate that.

10 So the point I'm trying to make is not that  
11 cooling towers or no cooling towers is the point of  
12 discussion here, but the pitfalls that people fall into  
13 who have a technology and say what the national  
14 standards should be for any power plant, not just on  
15 the Hudson River or on the south shores of Florida or  
16 on the west coast of California. Each one of these  
17 sites is very, very distinctly different.

18 As a company and as an Agency, EPA has to  
19 look across the nation to determine not just one  
20 technology, but evaluate each one of the sites on a  
21 case-by-case basis so that you would avoid the  
22 situation I just described with the manatees.

23 MR. ELDER: Okay. Let me hear Dennis first  
24 and then you next.

25 MR. DUNNING: With regard to performance  
26 measures, body counts are a very simple approach to  
27 determining the effectiveness of technologies. I'll

1 confine my comments to those on the list that you put  
2 up.

3 It's very straightforward, it's very simple.  
4 Using a percent reduction provides you with an  
5 additional piece of information, and that is it allows  
6 you to compare effectiveness across taxa if there are  
7 multiple taxa that are at interest. However, it is  
8 data intensive because it requires information about  
9 how many organisms are in the water body, in addition  
10 to the number that come through the plant.

11 And so, in determining what are the  
12 appropriate performance measures, one needs to ask,  
13 "Are you interested in a single taxa or species or  
14 multiple taxa," and by looking at a percent reduction  
15 you can compare on the same basis multiple taxa.

16 MR. ELDER: Okay. Kent?

17 MR. ZAMMIT: I don't know where the numbers  
18 are coming from, but it has been thrown out several  
19 times that cooling towers can reduce cooling water  
20 withdrawal by 98 percent, as much as 98 percent, and  
21 I've not seen, in my experience, anywhere near that  
22 type of reduction. I'll be glad to provide some  
23 numbers to EPA in our written comments on what would be  
24 typical, but a 98 percent reduction would cause cycles  
25 of concentration that you couldn't feasibly live with  
26 in a cooling water system. You would have scaling  
27 problems and your plant would be shut down on a very

1 quick basis, and so that sort of a performance  
2 standard, I just can't see where you would come up with  
3 that.

4 Also, one thing that has not been addressed  
5 and that I haven't heard, anyway, in some cases  
6 entrainment losses are the particular problem or the  
7 particular impact that needs to be addressed, and we  
8 have found sites where entrainment losses are very low,  
9 mortality is extremely low -- in fact, in some cases  
10 not measurable -- through a cooling system, a once-  
11 through system.

12 Any flow reductions would increase peak  
13 temperatures through that cooling system and probably  
14 increase mortality.

15 And one of the things that you need to look  
16 at is if you went to a cooling tower performance  
17 standard on a plant like that, you may actually  
18 increase mortality, because when you withdraw water for  
19 a cooling tower you have to assume 100 percent  
20 mortality on that entrainment. Those would be 100  
21 percent losses there.

22 And so it is a site-specific best  
23 professional judgment, in our minds.

24 MR. ELDER: Okay. LeRoy?

25 MR. YOUNG: I have some concerns with the  
26 idea of national standards when we're talking about  
27 cooling towers, for example, versus other technologies.

1 In Pennsylvania, for example, in the Susquehanna River,  
2 consumptive use water losses have escalated since the  
3 1970s, so that the low flows in the Susquehanna are  
4 contained and decline further and further.

5 And one of the major uses of water along the  
6 Susquehanna River are power plants.

7 So there is a site-specific problem with the  
8 use of cooling towers. If it's just across the board,  
9 this is the way this should be applied.

10 However, I think where we would be more in  
11 support of standards is with respect to types of  
12 screens that are used. Based on plant measurements,  
13 wedge wire screens have been put in place.

14 In a lot of other plants across the state,  
15 much more antiquated systems are used, and it seems  
16 fair to me that standards should be applied when it  
17 comes to that type of approach, types of screens.  
18 State-of-the-art screen devices are used versus -- as  
19 opposed to this cooling tower versus --

20 MS. NAGLE: Jim, what I'd be interested from  
21 you is that, from the list of technologies that I did  
22 put up there with the understanding -- we've been doing  
23 a lot of talking about cooling towers, but with the  
24 other technologies that I put up, are there any, I  
25 guess, reactions as to those that have been very  
26 successful versus those that have not been successful?

27 MR. ELDER: Dennis?

1 MR. DUNNING: I would like to clarify this.  
2 We should be very careful in comparing technologies,  
3 the installation of technologies at particular sites.

4 It has been my experience that technology can  
5 be successful in reducing fish mortality, but its  
6 application to a particular facility hasn't been  
7 designed well, and so what may happen is you have the  
8 right technology but the wrong application for that  
9 particular site.

10 And so the question is there are technologies  
11 that are successful can work and if misapplied cannot  
12 work, and you have to be careful to discriminate those  
13 as you ask the question what's successful.

14 FEMALE VOICE: Good point.

15 MR. ELDER: Are there any in anybody's  
16 experience that are total losers across the board?

17 (Laughter.)

18 MR. ELDER: Kit, you have some?

19 MS. KENNEDY: A winner and some losers.

20 In terms of impingement technology, E2, the  
21 Ristroph screens have been successful in our experience  
22 in reducing impingement. The fish diversion or  
23 avoidance systems in our experience have not been  
24 successful.

25 MR. ELDER: Thank you. Bart?

26 MR. RUITER: Just an example of in the  
27 (inaudible) they talk about the fish diversion

1 avoidance systems, and they say it works on a case-by-  
2 case basis, what kind of fish you're going to use,  
3 which ones you're trying to protect.

4 So it's not, you know, you have to put in a  
5 fish net barrier or other barrier; it's more of a site-  
6 specific technology that you're going to choose and the  
7 type of fish that you're trying to avoid.

8 MR. ELDER: Okay. Richard? Kit, I'll come  
9 back to you.

10 MR. DELGADO: Thank you. I wanted to  
11 acknowledge the problems with the manatees at the  
12 [inaudible] power plant and the Indian River plant.  
13 This is an endangered species, a very endangered  
14 species. They are dependent on the warm water  
15 refugees. They are basically, at this point, dependent  
16 on emissions from the natural warm water at least in  
17 part and they are dependent on the power plant  
18 discharges for artificial warm water barriers.

19 I know we really feel comfortable maintaining  
20 those organisms there, the plants. They are put in for  
21 economic reasons rather than to maintain organisms. We  
22 never are 100 percent sure that the artificial source  
23 of heat is going to be there. There are factors that  
24 can cause that plant to be taken out of service. I  
25 would assume that Florida Power has been probably very  
26 responsible in trying to maintain that species there.

27 But that is one instance where I would be

1 reluctant to see that warm water discharge being  
2 removed, because I think we know that that's a species  
3 that is already vanishing very fast and we don't want  
4 to see them gone.

5 In terms of technologies, we talked about  
6 wedge wire screens. The wedge wire screens have the  
7 potential, in many cases, to be almost as effective as  
8 cooling towers. The limitations on the screens are  
9 they've got small mesh size and low water intake  
10 velocity. You've got a system that is going to reduce,  
11 in many instances, your mortality through the water  
12 intake structure.

13 MR. ELDER: Kit?

14 MS. KENNEDY: Just a point about all the  
15 technologies that you've got on the list. On the fish  
16 diversion or avoidance systems, as I understand them,  
17 if they were also to reduce impingement but not  
18 entrainment -- because in entrainment you've got the  
19 larval organisms, so they don't care about [inaudible]  
20 being pushed along on the current.

21 As I look at these technologies, they all  
22 seem to me to be impingement technologies rather than  
23 entrainment technologies, so that's a comment that I  
24 would make.

25 MR. ELDER: Okay. Very briefly -- we're  
26 running in the our lunch period -- why don't we get Ned  
27 first, Ed, and then I'll come to you, and then let's

1 call it a morning.

2 MR. TAFT: In terms of the laundry list of  
3 technologies put up, I think it covers a lot of things.  
4 A lot of them have not been used at all or just a  
5 little bit, so there isn't a lot known about them.

6 I would say, relative to -- I would agree  
7 that the behavioral barriers tend to deal more with the  
8 greater larval and the older fish.

9 In sampling of experimental technologies, if  
10 it's done on -- I'm chairing a committee on the  
11 American Fisheries Society Bioengineering Section that  
12 has written a guideline on the application of  
13 experimental technologies that is going to be going out  
14 on a web page. We're putting it out for review, and it  
15 might be something that you all might want to look at,  
16 too, because it addresses a lot of these thorny issues.

17 I'd like to just reiterate something that  
18 Dennis said. A lot of the image in the industry about  
19 experimental technologies results from a lot of trial  
20 and error work and shoddy work that wasn't designed to  
21 lead to the excellent results that we've had with the  
22 sound system, and I think that's, again, going back.

23 I think we need to leave the door open to  
24 those kinds of technologies, and through this process  
25 that we're trying to develop -- and it is a process  
26 that's more in the guideline -- we are trying to  
27 address that for the industry, as a whole.

1 MR. ELDER: Okay. Ed?

2 MR. RADLE: In terms of the entrainment  
3 devices, the experiments are going on now. They are  
4 experimental. The fine mesh boom -- this is a study,  
5 in the shape of a boom. This is being experimented  
6 with right now on the Hudson river. So there's one  
7 aspect of entrainment.

8 In terms of the process, I think you have to  
9 look at the list as being dynamic. If something comes  
10 along or someone comes up with something that seems  
11 like it will work, add it to the list.

12 What we've done in New York is we've asked  
13 the utilities to conduct an intake technology review,  
14 and they submit what they believe are the possible ways  
15 of addressing the problem. We review it, and if we  
16 think it's necessary may conduct a site-specific  
17 engineering cross advocacy analysis, and that forms the  
18 basis for our decision.

19 So the process could look at selective ones  
20 or any ones, but it is based on what we believe are  
21 site-specific impact, level of impact.

22 MR. ELDER: Okay. You can spend your time  
23 during the lunch break multi-voting about each of the  
24 technologies.

25 (Laughter.)

26 MR. ELDER: With a rank of one to 10 about  
27 highly-effective down to not effective at all, or you



1                   A F T E R N O O N   S E S S I O N

2                   MR. ELDER:   Would the sergeant-at-arms please  
3 clear the room?  I know you're all eager to hear the  
4 results of the multi-voting.

5                                 (Laughter.)

6                   MR. ELDER:   Light barriers scored the  
7 highest, with 117 votes; porous dike came in second.

8                                 I made that up.

9                                 (Laughter.)

10                  MR. ELDER:   Okay.  This afternoon we're going  
11 to talk about cost issues, and Lynne Tudor is the very,  
12 very eager person who is going to kick off that  
13 presentation, so, Lynne, EPA's favorite economist.

14                  MS. TUDOR:   We're going to bring up and talk  
15 about costing issues, but I'd like to set up just a  
16 little bit of the guideline, if I may, at first.

17                                 What we are going to assume is that there is  
18 an adverse impact, that this has been established that  
19 there is at "X" number of facilities that there is an  
20 adverse environmental impact, and then we're going to  
21 assume that the most-effective technology has been  
22 chosen.  And then comes into consideration cost.

23                                 Now, there are two different types of main  
24 cost considerations.  One is cost considerations for  
25 national rule-making, and the other is cost  
26 considerations possibly for permitting purposes.

27                                 Now, for cost considerations for national

1 rule-making, it is fairly prescribed what we have to do  
2 in the rule-making process, and for anyone who is  
3 interested, I have a three-page summary sheet outside  
4 on tables. Afterwards, you can pick them up and take a  
5 look at them.

6 What it does is it boils down EPA's  
7 guidelines for doing RIAs and analyses into three  
8 pages, picking up the highlights.

9 That's not the focus of today's discussion.  
10 Today's discussion is to be focused on what happens  
11 after you have determined there is an adverse impact  
12 and the technology has been selected, what part does  
13 cost now play in the process.

14 What we hope to gain from this session is  
15 input from you on how, if at all, costs should be  
16 included and, if they are to be included, what types of  
17 cost cuts, and at what level should cost cuts be  
18 applied.

19 This is the first one. We'll put these back  
20 up again when we open up the discussion. We have  
21 questions, and we'll take them one at a time and go  
22 through it. This is what basics should be applied to  
23 cost cuts.

24 Now, if we are going to look at cost cuts and  
25 we're going to do them on a page-by-page basis, which  
26 is not predetermined -- that's part of should we do  
27 cost cuts, part one, which is all open. But for

1 discussion, what kind of cost cuts should we perform?

2 You're familiar with the proportionality  
3 test, which is a type of a cost benefit. There are  
4 other types of cuts that are available -- cost  
5 effectiveness, affordability -- which is what you see  
6 within the guidelines of the other types of programs.  
7 All of these are open.

8 The second part of this is what important  
9 parameters should EPA take into consideration in  
10 performing those cost cuts?

11 And the third question that we have on the  
12 board that we're looking toward is, assuming we are  
13 going to do cost cuts and assuming we decided what cost  
14 test is appropriate, at what level are we going to  
15 perform the cost cuts?

16 Now, we know that it has been done in the  
17 past on a facility-by-facility basis, but we're  
18 beginning to approach economic issues on a watershed  
19 basis or other regional basis such as ecosystems.  
20 This, perhaps, with the deregulation and the things  
21 that are going on with the utility or firm level or  
22 more appropriate level, because a utility can make  
23 decisions between plants as to how they are going to  
24 shift power.

25 Another way of looking at it, you're looking  
26 at it from competition, perhaps, of type of region, or  
27 even the industry as a whole.

1                   So all of these issues have not been  
2 segregated. They're all open for discussion. We'll go  
3 back to diversity and, Should there be cost cuts?

4                   MR. ELDER: If you don't mind, I can just  
5 stand up here and try to be commanding.

6                   (Laughter.)

7                   MR. ELDER: All right. Brent?

8                   MR. BRANDENBURG: My name is Brent  
9 Brandenburg. I'm with ConEd, and I'm appearing here  
10 this afternoon on behalf of UWAG.

11                   UWAG believes that cost issues need to play a  
12 very significant role in the 316(b) permitting process,  
13 and our suggestion is that these factors need to be  
14 included in the decision-making process of 316(b) at a  
15 very early stage before selecting the best technology.

16                   We think there are several important public  
17 policy issues. We hope to discuss those with all the  
18 participants in the workshop this afternoon, in  
19 addition to the statutory requirements, some of which  
20 are in the Clean Water Act. The search is for the best  
21 technology, but we believe that economics very much  
22 contributes to the selection and classification of a  
23 technology as best. But there are subsequent legal  
24 requirements that Chris and others I'm sure others will  
25 speak to.

26                   But the principal reason for the public  
27 policy reasons for using cost tools to guide the 316(b)

1 process is that it's an essential organizational tool,  
2 in our judgment, for a vast array of dissimilar  
3 information.

4 Many people acknowledged this morning that  
5 there are air pollution and multimedia issues. There  
6 are certainly aquatic impacts. There are a number of  
7 impacts that need to be considered, and all have their  
8 own roles in informed 316 decision-making, and we  
9 believe that economics, use of benefit costs and  
10 approvals that are well accepted have an opportunity to  
11 make significant contributions to the outcome of the  
12 permitting process.

13 Also, the use of cost-benefit concepts,  
14 allocate scarce resources is a not-insignificant  
15 consideration, particularly in an industry that is  
16 becoming deregulated.

17 And last, as I alluded to before, the statute  
18 does, indeed, require the best technology available,  
19 and we believe that an informed decision can be  
20 significantly aided by the use of cost principles, not  
21 just as a justification at the end of the process, but  
22 rather at the time as an aid to the selection of the  
23 applicable technology and the particular application  
24 for the permit.

25 MR. ELDER: There are a few questions at the  
26 table. David, introduce yourself.

27 MR. HARRISON: Yes. I'm David Harrison. I'm

1 a vice president at National Economic Research  
2 Associates, and I'm here on behalf of UWAG and also  
3 [inaudible].

4 MR. ELDER: Reed?

5 MR. JOHNSON: I'm Reed Johnson from Triangle  
6 Economic Research. Kent let me sit here under the  
7 provision that I would immediately disclaim any  
8 association with EPRI. However, I'm also assisting  
9 UWAG in their comments on this ruling.

10 MR. ELDER: Okay. Anyone else at the table  
11 want to get into the number one issue dealing with the  
12 fundamental first impression issue about with regard to  
13 cost or without regard to cost?

14 Ed?

15 MR. RADLE: The State of New York has  
16 operated a program for 20 years or more, and we believe  
17 that costs are inevitably part of the decision-making  
18 process, and I'll deny having to agree with Brent --

19 (Laughter.)

20 MR. RADLE: But our process involves a rating  
21 of the technologies in terms of effectiveness, and when  
22 there is a problem we address it, and backing through  
23 and rating them by cost, and backing through those  
24 until there is a balance between the cost of mitigation  
25 and the effectiveness of it. We think that in most  
26 cases we were able to come up with something that makes  
27 some sense in terms of what a state would impose on an

1 industry in terms of mitigation. And I'll just leave  
2 it there.

3 MR. ELDER: Any other people at the table?  
4 Richard?

5 MR. DELGADO: In terms of cost, the first  
6 thing I would want to say is we have to be very careful  
7 in doing cost/benefit analysis. It's very, very  
8 difficult for the regulatory agencies to translate  
9 environmental costs and environmental benefits into  
10 monetary terms. It is not very easy for us to get good  
11 figures in terms of population losses. But in terms of  
12 projecting those, something that has a dollar value,  
13 it's even more difficult, and I don't think it's even  
14 appropriate to use those terms.

15 I would feel very nervous if you told me that  
16 a regulated facility should take fish and translate  
17 those fish into dollar cost. Generally, I would be  
18 very reluctant to look at it that way. If we do that,  
19 we are going to lose a lot of other values that are, I  
20 think, considered by the public at large.

21 I urge you not to put fish into dollar-and-  
22 cents terms. I think, in terms of dealing with the  
23 potential national standards, performance type, and  
24 costs, there are many costs we'd have to analyze to  
25 support performance.

26 Some of the less obvious costs that you have  
27 to consider would be, in my opinion, impacts on

1 consumers, and impacts on plant closures, as well.  
2 You're dealing with economic costs of adding pollution  
3 control to cooling water intake structures. There are  
4 costs that are going to result in some of those  
5 facilities being closed for economic reasons. That  
6 would have to be identified.

7 MR. ELDER: Okay. Theresa?

8 MS. HANCZOR: Yes. Since the 316(b) has no  
9 reference to cost whatsoever, and this stands out  
10 because many other sections of the Clean Water Act have  
11 provisions that say best technology economically  
12 feasible, and we think that the silence of Congress  
13 here with regard to omitting any provision with regard  
14 to cost has to be taken quite seriously.

15 Secondly, in response to what Brent has said  
16 about pushing up the discussion of cost to a very early  
17 stage of analysis, we strenuously object to that  
18 because the issue has to be to determine what is best  
19 technology available. What is the performance level  
20 available, and what technologies would be best applied  
21 at a specific plant?

22 It is only at the point of selecting the  
23 technologies for a specific site that cost comes in.  
24 It does not come in as a determination of what is BTA.

25 Lastly, in regard to a whole disproportionate  
26 test, this test came into play in the Seabrook case,  
27 and that case basically was just deferring to the

1 Agency and saying, "Okay, we will defer to you, and one  
2 of the reasons why is because we have no regulation to  
3 deal with the issue of cost."

4 (Whereupon, there was a brief break due  
5 to microphone problems.)

6 MS. HANCZOR: Basically, I was stressing the  
7 point that I don't think economic issues should derail  
8 the primary discussion of what is best technology  
9 available, and I disagree with what Brent was  
10 suggesting to put economic issues up front in this  
11 dialogue we're having.

12 I mentioned that Congress did not include any  
13 economic provision in the plain language of the  
14 statute, unlike other sections of the Clean Water Act,  
15 and that we should heed that unambiguous notion that  
16 best technology available was to minimize adverse  
17 environmental impacts and costs were not to be a  
18 factor.

19 The other thing is that the wholly  
20 disproportionate test which came out of the Seabrook  
21 decision really was more of a statement about the court  
22 deferring to the Agency's decision in the absence of  
23 regulations, and one of the reasons we're here today is  
24 so that regulations address this issue so it's not a  
25 matter of Agency case-by-case analysis; that there are  
26 clear standards that can be addressed across the  
27 nation.

1           So basically we want the EPA to reject this  
2 false dichotomy between environmental protection and  
3 cost, and to abide by the clear mandate of the statute,  
4 and that mandate is best technology available, and that  
5 must be determined before costs come into play.

6           MR. ELDER: Okay. Bart?

7           MR. RUITER: I think costs should be taken  
8 into account. I don't see the need, especially cost-  
9 effectiveness for a small cooling water intake of,  
10 let's say, 100,000 to 200,000 gallons per day pulling  
11 it out of the Delaware River should put in best  
12 available technology if it's not having any adverse  
13 impact where --

14           MS. TUDOR: Wait a minute. Let's go back  
15 here. The presumption of this conversation is that for  
16 any given facility there is an adverse environmental  
17 impact and that the best technology has been  
18 determined.

19           We are not saying that every facility in the  
20 world is going to have to do everything.

21           MR. RUITER: That's not what I just heard.

22           MS. TUDOR: There is cost --

23           MR. RUITER: That's not what I just heard.  
24 You keep on talking utilities. The majority of the  
25 dischargers in numbers are small cooling water intakes.  
26 Okay? And I understand what you're saying, but that's  
27 not what I heard.

1 MS. TUDOR: I just don't want to get arguing  
2 the last two meetings, the last two sessions that we  
3 had.

4 MR. RUITER: I just want to clearly be known  
5 that I understand what you're saying, but if somebody  
6 says, "Hey, regardless of cost, you need to put best  
7 technology available in," then I think cost should be  
8 considered. Okay?

9 MR. ELDER: Kristy?

10 MS. BULLEIT: A couple of just maybe  
11 elaborations or points of clarification.

12 We believe that to define the best technology  
13 available one has to consider cost. And maybe, just to  
14 clarify, we think it's hard to understand what is the  
15 most effective technology without taking the cost  
16 between the cooling and other environmental side  
17 effects. But since the mandate of the statute is to  
18 minimize adverse environmental impacts, we think that  
19 some consideration of those kinds of costs needs to be  
20 made up front in gauging effectiveness.

21 So that's just one little point of  
22 clarification, and I think that's what Brent was trying  
23 to get at -- that you can't simply look at performance  
24 as to a specific species without considering those  
25 other side effects.

26 A couple of other -- to the more specific  
27 question, which is, you know, What does the statute

1 contemplate and how should that be done, we believe  
2 really strongly that whether the plant is -- whether  
3 the intake structure is a large intake structure or a  
4 small intake structure, Congress intended and specified  
5 that costs and benefits would be considered in  
6 assessing what is the best technology available.

7 It is true, they didn't use the word "cost"  
8 in 316(b), but they did use the terms "best" and  
9 "available," and it's not, our view, as a public policy  
10 matter, the best if it over-compensates, and it is not  
11 available if the facility can no longer operate if it's  
12 used at that facility.

13 It is also true that Congress juxtaposed that  
14 requirement for best technology available against a  
15 requirement that it minimize adverse environmental  
16 impact, and that adverse environmental impact, as I  
17 said earlier, contemplates something more than  
18 entrainment and impingement. If Congress had wanted to  
19 focus only on that, again, using the sort of plain  
20 language approach, they easily could have said that,  
21 but they didn't.

22 The legislative history on this, what little  
23 legislative history there is under 316(b) that does  
24 anything more than recite the statutory standard  
25 clearly advocates consideration of costs and benefits.  
26 I don't think there can be a whole lot of dispute about  
27 that.

1           And there have been statutes and, if you  
2 will, executive rules passed since the statute was  
3 enacted that also mandate that, where the Agency has  
4 discretion to interpret a statute, to interpret it so  
5 that the rule it produces will maximize net benefits  
6 and reduce burdens to the regulated community, and we  
7 think those are telling to the extent that there is  
8 some discretionary component, that the Agency should be  
9 interpreting 316(b), both because of its plain language  
10 and because of the other legal mandates on it, to  
11 require consideration to costs and benefits.

12           MR. ELDER: Just for clarification, they use  
13 the phrase "executive rules"?

14           MS. BULLEIT: I'm trying to use it --  
15 executive order 12866, yes, is the one I'm thinking of.

16           MR. ELDER: Okay.

17           MS. BULLEIT: It's not a law, but, yeah,  
18 right.

19           MR. ELDER: Kit?

20           MS. KENNEDY: Just quickly, I think when we  
21 look at the meaning of the word "best," I think it is  
22 too much to extrapolate from that a meaning that "best"  
23 requires a discussion of cost because, after all, in  
24 many other parts of the Clean Water Act Congress uses  
25 the term "best available technology economically  
26 achievable." So it would be superfluous to tack on  
27 "economically achievable" if that was what best meant,

1 so it's telling them in other parts of the statute the  
2 technology called for is technology that is  
3 economically achievable. In here it isn't.

4 MS. VANROSSUM: Kit said half of what I was  
5 going to say, so I don't need to say it again.

6 I think also I would greatly dispute that the  
7 way you determine the effectiveness of the technology  
8 and whether or not it works is by how much the price  
9 tag attached to it is. I don't think that anybody can  
10 rationally believe that to be true.

11 You determine whether or not a technology is  
12 effective by whether or not it works, and you use  
13 science and what the actual impacts and results are as  
14 a result of that, not what the price tag of that is.

15 So I think that I would greatly dispute that,  
16 along with your characterization that there can be no  
17 dispute about the language of the statute.

18 There is a whole lot, and you know there's a  
19 whole lot out there, so --

20 MR. ELDER: Kristy?

21 MS. BULLEIT: I want to just clarify my  
22 remarks.

23 First of all, I think the legislative history  
24 is what I referred to in terms of what the legislative  
25 history says. There isn't a lot of it. What there is  
26 tends to address the cost issue, first.

27 Second, I did not say that we look at cost

1 alone as a determinative of how a technology works,  
2 purely monetary costs. I said that in gauging  
3 effectiveness you have to consider performance for a  
4 variety of different environmental end points, and  
5 those are costs. In a cost/benefit analysis, the  
6 effects of one on one environmental end point might be  
7 arrayed against the effects on another environmental  
8 end point, but my point remains the same.

9 You have to consider the effects on one  
10 aspect of the environment against another aspect of the  
11 environment to figure out whether or not you're  
12 minimizing adverse environmental impact using the best  
13 technology available.

14 Third, you make a point, and it is a good  
15 point and I'm glad you made it because I omitted  
16 something from my original statement with regard to  
17 Congress' use of the term "best technology available."  
18 They have used it in other parts of the statute, and  
19 where they've used it they've always intended it to  
20 mean a consideration of cost.

21 And in both Congressman Clark's remarks and  
22 in the House Conference report it clarified that they  
23 did, in fact, intend to use those terms in exactly the  
24 same way here to ensure consideration of cost.

25 I end with that.

26 MR. ELDER: Okay. Anyone else at the table?  
27 David? I saw a hand earlier.

1 MR. HARRISON: What I wanted to raise is sort  
2 of public policy issue, and just to mention that I was  
3 asked to participate because of experience in doing  
4 benefit/cost analyses over the years. I was a  
5 professor at the Kennedy School and also at the Council  
6 of Economic Advisors, and have been at NERA (phonetic)  
7 doing cost/benefit analyses.

8 What is clear to me, actually, from listening  
9 to the discussion, is that it is very useful to have a  
10 structure. Really, one of the things we want to  
11 discuss is the role of benefit/cost analysis and the  
12 role of the structure of cost.

13 I noted that when Lynne described the  
14 process, that there was a process of selecting BTA.  
15 And I think, from a public policy standpoint, it's very  
16 useful to realize that what you want to do is to  
17 develop information on the costs and the benefits, the  
18 effectiveness -- all these issues that we've been  
19 discussing, both, I guess, at the previous session and  
20 today, and organizing that information, using that as a  
21 way of informing decisions about what is best  
22 technology available.

23 And so really I think the way to think about  
24 the cost is really as part of this over-arching  
25 evaluation of technology alternatives that we were  
26 discussing this morning. We would be developing  
27 information on how effective those were in dealing with

1 the environmental issues.

2 Kristy and others have mentioned the other  
3 unintended effects, the possible effects on other  
4 environmental media. Well, those can also be organized  
5 in a very useful way in determining what is the  
6 appropriate technology.

7 So I think the question is posed usefully in  
8 terms of the role of cost, but I might broaden it to  
9 say what is the role of cost, where does it enter into  
10 the process, and how can we organize the process, the  
11 information, in a way that is useful in making  
12 decisions. I think that might be one way of organizing  
13 the discussion.

14 MR. ELDER: Sorry Richard. Reed?

15 MR. JOHNSON: I'd like to just expand on one  
16 or two points that David made and a couple of things  
17 that were made elsewhere.

18 Costs, of course, as David suggests are not  
19 just the price of the technology but may involve some  
20 environmental costs. We've heard some examples already  
21 today of unintended costs intended to protect one  
22 aspect of the environment at a cost of some other  
23 aspect of the environment.

24 What David is suggesting is that we need to  
25 take into account for those costs in our decisions,  
26 just as we would account for the benefits or protective  
27 benefits of the draft regulation.

1           Bart raised this question about small  
2 entities, and certainly his argument is that a common-  
3 sense approach to policy is to take into account that  
4 some small entities are only withdrawing a very small  
5 amount of water and having a very small impact. It  
6 just seems unreasonable, from a decision-making point  
7 of view, to impose extremely costly fixes on a plant  
8 that has negligible impact.

9           I mean, this is just another way of saying we  
10 need to pay attention to both the benefits and the cost  
11 of what we do, just because we want to get the most  
12 protection we can out of the environment for the  
13 resources that we expend.

14           These are sort of common-sense ways of  
15 approaching policy that the EPA uses in many areas, and  
16 for which there are established procedures.

17           MR. ELDER: Let me get Richard.

18           MR. DELGADO: I want to play with this cost  
19 question. When we're dealing with BTA, it is my belief  
20 that when we're dealing with something that's  
21 available, in making that determination of what's  
22 available, if something is not economically feasible,  
23 to me -- and I don't have a law degree. My degrees are  
24 in engineering. But if something is not economically  
25 achievable, it is hard for me to say that that's really  
26 available.

27           I think EPA has the law and gave us the

1 wholly-disproportionate cost test that we've referred  
2 to, and I think if EPA wants to use something other  
3 than that I'd certainly expect that there would be some  
4 articulation of reason for a change in that.

5 But I would probably tend to come back to  
6 that. It's something you've used for a long time, and  
7 it seems to be something that regulatory agencies can  
8 deal with.

9 MR. ELDER: Do you want to clarify the  
10 Agency's desire on that issue?

11 MR. GRAVELLESE: I'm David Gravellese. We  
12 really are hoping to have a full policy discussion of  
13 this cost issue. You know, as the discussion already  
14 has made clear, there are differing viewpoints about  
15 how the statute is to be and should be interpreted.

16 We have, as other people have said already,  
17 used the wholly disproportionate test for a long time,  
18 but we are engaged in a rule-making process where we're  
19 going to need to decide whether to stick with that or  
20 whether to change it. That's a decision that still has  
21 to be made, based in part on policy considerations, and  
22 that is what we want to focus on.

23 MR. ELDER: Kit?

24 MS. KENNEDY: I think there may be actually  
25 some more points of agreement lurking out there than  
26 one might expect on this. I mean, I think on the point  
27 about small facilities, I think our position is there's

1 no basis in the statute for using a test, but if you're  
2 going to use a test you use the wholly disproportionate  
3 test and that would take care of the small facility,  
4 because under the way, you know, we would suggest using  
5 that test, if you're going to use a test, you choose  
6 the technology and then you examine whether the cost of  
7 the technology is wholly disproportionate to the  
8 environmental impact perceived.

9 So if you have a small facility using a small  
10 amount of flow, applying that test, you know, I think  
11 would knock out an expensive technology.

12 So I think the issue of the small facilities  
13 is probably a bit of a red herring and could be dealt  
14 with in a number of different ways.

15 Also, on the issue of environmental costs, I  
16 don't think there's any disagreement that when you're  
17 looking at the environmental costs of the cooling water  
18 system and you're looking at the technology to -- the  
19 best technology to reduce those impacts, that you would  
20 also look at the impacts of the technology, itself.

21 So, for instance, for cooling waters there  
22 are environmental issues associated with cooling  
23 towers, and I don't think we're saying don't look at  
24 those. I think we're saying that when you examine them  
25 in the light of day, you examine those impacts and the  
26 methods that are out there to reduce those impacts,  
27 that, in fact, you'll find that it's not a particularly

1       scary or environmentally-harmful technology.

2               So, you know, when we talk about -- so  
3 looking at the environmental impacts of the technology  
4 you're looking to employ is not the problem. The  
5 problem is using another type of cost/benefit analysis  
6 that focuses too exclusively on the cost of the  
7 technology, that ignores the benefits of the  
8 technology, and that's used too early in the process to  
9 knock out a clear examination of what the best  
10 available technology is. That's really the crux of the  
11 problem.

12               MR. ELDER: Maya?

13               MS. VANROSSUM: So far, pretty much everybody  
14 I've heard speak, I'm sure myself included, has used  
15 the word "cost" with a variety of definitions -- the  
16 environmental cost and then the dollar cost. And  
17 that's where I think a lot of the cross-over is  
18 happening in the discussion. Maybe we can agree, if  
19 you're talking about environmental cost, say  
20 "environmental cost," and if you're talking about  
21 dollar cost, say "dollar cost," because again I think  
22 we had -- I heard Reed, for example, have very  
23 important things to say. In the first half of his  
24 conversation he was using cost including environmental,  
25 and then the last two sentences used cost for what  
26 seemed to be limited to dollar figures, and the same  
27 with Kristy, and, again, I'm sure [inaudible] -- so,

1 helpful thing from here on out.

2 MR. ELDER: That was a useful suggestion.  
3 David?

4 MR. HARRISON: I think that's a good point.  
5 That's a little bit of the point that we were making  
6 before about structuring the problem. That is, if you  
7 structure the problem, then this issue of terminology  
8 can be clarified. So what you're really talking about  
9 -- of course, there are obvious costs. There was some  
10 discussion this morning about power costs, sort of  
11 losses of power associated with various technologies.

12 Reed was suggesting that there are some other  
13 adverse effects of the technology. I think he was  
14 using "costs" to include those, as well.

15 And then, if you think about it, the other  
16 part of the equation, the benefits, what you're really  
17 there doing is trying to organize the information about  
18 how effective it is in reducing various adverse  
19 environmental impacts, fish losses, so that there are  
20 benefits in terms of those additional gains.

21 And so, by structuring it that way, you  
22 basically have a way of organizing it, but the  
23 terminology tends to become easier because you see  
24 what's actually at stake.

25 So I think you're right to the point about,  
26 in terms of terminology -- I think the point that you  
27 were saying is that there are costs that are not just

1 capital and operating costs, so with technology those  
2 can be taken into account.

3 MR. ELDER: Rich?

4 MR. BOZEC: It was just a matter, I guess, of  
5 reclarification. There was a statement that there is a  
6 broader environmental cost that would be associated  
7 with technology that has been mentioned. That's what  
8 was said, and I agree. I think our membership agrees  
9 that those kind of costs need to be accounted for.

10 My only point of clarification -- not to try  
11 to sound point-counterpoint, but I have in my notes a  
12 list of disagreements with that statement so far, you  
13 know.

14 MR. ELDER: So noted.

15 (Laughter.)

16 MR. BOZEC: It's important because I think we  
17 are in agreement on that point or get that flavor that  
18 technology impacts costs, or however you want to label  
19 it, that I think we all agree needs to be accounted for  
20 in some way.

21 MS. HANCZOR: I'd like to respond to that. I  
22 don't think Kit and I were disagreeing at all. I think  
23 we both were saying that the issue of BTA must be  
24 decided before any discussion of cost. Only then, when  
25 a utility comes forth with one technology or a suite of  
26 technologies, does a discussion of cost come into play.

27 So I'm not going to -- I think we're in

1 agreement, and perhaps you want to point out to me  
2 where we're not.

3 MR. BOZEC: I thought, again, this was for  
4 just clarification. I understood it to suggest that  
5 specific technology choices have or could have impacts  
6 associated with them.

7 MS. KENNEDY: And I don't think that Theresa  
8 disagrees with that. When you look at the EIS process  
9 -- again, not to bore you all with the Hudson River,  
10 but that we're involved with, it involves looking at  
11 the technologies, looking at environmental impacts,  
12 including the environment impacts of cooling towers.

13 Now, I think where you and I might differ  
14 very strongly is, Are those impacts serious or not?  
15 And do those impacts outweigh the benefits to the  
16 fisheries?

17 But I think it is, you know, an unremarkable  
18 proposition to say that if you're studying these things  
19 you, you know, look at the problems, or whatever. It's  
20 just that we don't think -- we think those problems are  
21 built up in an exaggerated way in an effort to knock  
22 out that technology, whereas if you look at it in kind  
23 of the light of day they are not problems of particular  
24 environmental concern.

25 MR. ELDER: Okay. I think we're done in  
26 here. We're going to have to move on fairly soon to  
27 the second set of questions concerning costs or else

1 we're not going to get to that at all.

2 Brent, I think you had your hand up.

3 MR. BRANDENBURG: Just a brief point of  
4 observation.

5 I hear, Jim, around the room this afternoon  
6 an apparent consensus that economics and cost play some  
7 role. There's a broad divergence of view as to when  
8 and how those should be applied, but I find myself in  
9 agreement with Kit Kennedy that there may be more areas  
10 of agreement, at least at a broad conceptual level,  
11 than might have appeared at an earlier time.

12 I think part of the reasons and the vision of  
13 the role of cost considerations that UWAG supports is  
14 driven by the fact that we see a very site-specific  
15 role for this.

16 We have the example of the small withdrawal.  
17 We have the example of the very marginal facility that  
18 might close as a result of environmental compliance  
19 costs. And we have vastly-differing mitigation options  
20 available to us from very reasonable to frightfully  
21 expensive for the ones that would actually demolish the  
22 economic viability of the facility, be it a power plant  
23 or another kind of industrial facility.

24 So there is a broad spectrum of potential  
25 outcomes, there's a broad spectrum of inputs into the  
26 decision-making, and it is for that reason that we  
27 favor a relatively early reliance on economics as an

1 organizational tool to help both the permit writer and  
2 the permit applicant work their way through the morass  
3 of information.

4 Economics, in our judgment, can illuminate  
5 the BTA decision process. I made that, and, after  
6 thinking about Lynne's comment earlier, I think maybe  
7 our point of difference there is her suggestion that  
8 the BTA decision has already been made, in my mind, may  
9 be sort of a one-size-fits-all kind of artifact, if you  
10 will, and it's something that we would counsel against.

11 I did, however, want to address the wholly  
12 disproportionate test very briefly. We do not believe  
13 that is well instilled in the rubric of 316(b). It was  
14 referenced in a handful of cases more than 20 years  
15 ago.

16 From UWAG's perspective, though, it results  
17 in a very persistent, systematic over-subscription of a  
18 solution. You have a ten thousand dollar problem, you  
19 put a million dollar solution on it, or something like  
20 that. It has that level of overkill, if you will,  
21 associated with it.

22 We believe that the advances in the economic  
23 tools available to us, as to which there's a broad  
24 consensus now -- just the other day I got some new OMB  
25 guidance that has been published for EPA rule-making,  
26 and it acknowledges the tremendous advances that have  
27 been made in the economic tools that we have to address

1 to these problems.

2 The availability of those more sophisticated  
3 economic tools and the imposition of new requirements  
4 that Kristy and others have alluded to -- executive  
5 orders and what not -- I think really take away any  
6 rational basis for the wholly disproportionate test.

7 The approach that UWAG supports -- and,  
8 again, it's one that we think can illuminate the  
9 decision-making process for BTA -- is one of reasonably  
10 proportional.

11 MR. ELDER: Reed, did you want to offer  
12 anything?

13 MR. JOHNSON: Sure. I think it is obvious  
14 that costs are costly. There may be some distinctions  
15 here and some possibly easier to monetize than others,  
16 but what we're talking about really is what do we have  
17 to give up in order to get something that we want, and  
18 those things are all costs.

19 I spent virtually all of my career trying to  
20 figure out how to monetize difficult-to-monetize  
21 things, including 10 years in the Office of Policy  
22 Analysis at EPA. And there are many areas in which we  
23 are able to, I think with some degree of confidence,  
24 monetize both benefits and environmental cost.

25 MR. ELDER: Maya?

26 MS. VANROSSUM: Just to begin, I do not -- we  
27 don't buy into the argument that economic costs, dollar

1 costs should be playing a role -- and I'm talking about  
2 Delaware Riverkeeper Network now -- should be playing a  
3 role in the 316(b) discussion.

4 To the extent that we hear that it is a big  
5 possibility that it will be in the process, to the  
6 extent that I can come up with it at this point that we  
7 think should help guide that aspect of the decision is  
8 this: that you begin by selecting the best technology  
9 available, regardless of the economic costs.

10 And I'll be perfectly frank with you. You  
11 know, how the environmental cost plays into that I  
12 still need to think about a little bit, but in terms of  
13 the economic cost, that is not a factor. You come up  
14 with your list of best technology available for dealing  
15 with or minimizing the adverse environmental impacts,  
16 as we see to be the specific harms caused by that  
17 facility, as mentioned earlier.

18 So you've got your list of BTAs from a purely  
19 scientific perspective, success perspective. At that  
20 point, if you're going to apply a cost test which  
21 includes economics, or an economic cost test, that  
22 would be a point to do it. After you've got your list  
23 of technologies, then you might start to think about  
24 the dollar figures and how that relates to the benefits  
25 that would come out of a particular technology or each  
26 of the particular technologies.

27 But part of that comparison of benefit/cost

1 analysis should not include what is the economic impact  
2 on the facility, itself, meaning you're looking at the  
3 cost and the benefits of the technology. Whether or  
4 not the facility can afford it and will go out of  
5 business is not part of that analysis. You don't look  
6 at that.

7 The reality is there are going to be  
8 sometimes when they're not going to be able to afford  
9 it, but you have to start using a more uniform  
10 standard, looking at things perhaps from a more  
11 national perspective. You take that out of it.

12 As part of the cost analysis, economic and  
13 environmental, we need to make sure -- and, again, this  
14 is something that needs to be played in there, but  
15 there are certainly -- I'm sure the economists will  
16 agree with me that you have to look at the cost of not  
17 implementing particular technologies. What would  
18 happen if you don't use them needs to be a part of that  
19 analysis. And also, I just want to throw out here --  
20 and sort of in support of one of the things Richard  
21 said earlier, that it is very hard to put a dollar  
22 figure on environmental resources.

23 And in terms of at the point when you get to  
24 the cost/benefit analysis, we cannot be looking at  
25 dollars to dollars. It doesn't work. The environment  
26 doesn't operate that way. The world doesn't operate  
27 that way. And one of the reasons why we're in the mess

1 we are is because people have been trying to look at  
2 the world that way, dollars to dollars, and it doesn't  
3 work.

4 So the method -- the cost/benefit method that  
5 is finally applied, assuming that one is applied at  
6 some point, has to take into consideration some of  
7 these unreachable sort of more -- not unreachable, but  
8 -- can't even think of the words right now -- some of  
9 these concepts out there that aren't easily accessible  
10 to dollar figures, and we know what they are.

11 You know, when you lose the fish, there are  
12 bigger impacts than just what are the dollar figures to  
13 the fishing industry. It's an important impact, but  
14 there are many, many, many other costs to that and you  
15 can't put a dollar figure on them and we shouldn't try.

16 MR. ELDER: I'd like to exercise my right to  
17 move on.

18 Let's be hypothetical for a second. If cost  
19 were to be thought about on a case-by-case basis -- I'd  
20 like to get into that here -- what type of cost test  
21 should be used? And please provide an example or  
22 evidence of any other issues that may have different  
23 type of issues of what cost/benefit means versus cost  
24 effectiveness, and so on. That's what I'd like to  
25 focus the discussion on for the next few minutes  
26 hypothetically.

27 David?

1 MR. HARRISON: Thank you.

2 Well, I think, as we sort of talked about  
3 before, I think the test that seems to make sense from  
4 a public policy standpoint is looking at the cost  
5 estimate. What's very clear is that there are all  
6 kinds of things you have to be able to compare, and the  
7 usefulness of this structure of the cost analysis,  
8 frankly, it does allow you to do that.

9 As we've mentioned, or Reed has mentioned,  
10 there's a lot of experience that we've had in trying to  
11 develop these benefit/cost analyses and provide sort of  
12 a useful structure for organizing it.

13 So once you have that, actually I could see,  
14 actually, as Maya was describing her framework, I think  
15 part of that really, if you think about it, there's a  
16 question about what technology you start with, but  
17 arraying a variety of alternative technologies, what  
18 their costs are, what their impacts are on different  
19 dimensions, and trying to organize that information is  
20 simply a logical structure.

21 So I think we would argue that, from an  
22 economic standpoint, it is possible to do a lot in  
23 clarifying what's actually at stake.

24 Once you get to the question of, After you've  
25 got this information, what do you do with it, that's  
26 really an issue about the decision rule; that is, how  
27 do you use that information to clarify your decisions?

1           There, from a public policy standpoint, what  
2 you want to do is you want to avoid spending a lot of  
3 money and getting relatively little for it. So that  
4 suggests that there is sort of a -- you want to look at  
5 the incremental costs and incremental benefits and  
6 avoid spending a lot of money and getting relatively  
7 little for it, so that suggests a test which is  
8 sensitive to the relative magnitude of the benefits and  
9 costs.

10           So I think it is useful to have this  
11 structure out here, to have us talk about what ought to  
12 be included in these kind of benefit/cost comparisons,  
13 where the uncertainties are, and, particularly, how to  
14 deal with the uncertainties if there are uncertainties  
15 about what the effectiveness of different technologies  
16 are. How do we deal with that? How can we include  
17 that in the analysis, as well?

18           MR. ELDER: Ed?

19           MR. RADLE: As usual, Brent confused me with  
20 his statement before, but could you explain how what  
21 you just proposed contrasts with -- Brent seemed to be  
22 rejecting that wholly disproportionate test that you  
23 spoke of just now, and I didn't understand how what  
24 Brent said differs from what you just said.

25           MR. HARRISON: I think I was actually not  
26 getting at the specific issue of disproportionate, what  
27 the level is. From a public policy standpoint, you

1 really want to avoid situations where the likely costs  
2 are greater than the likely benefits as you're  
3 increasing, adding costs.

4 What typically happens -- we've done these  
5 kinds of studies. What typically happens is you see  
6 that there's a range of technologies. Well, they have  
7 different effectivenesses. So you're sort of going up  
8 that curve and asking yourself, Is it worthwhile, as  
9 you go from one technology that is effective to the  
10 next technology that is more effective, is that added  
11 cost of that technology worth it.

12 So it's really a proportionality at the  
13 increment that one is actually talking about. That  
14 sort of -- you know, when you teach benefit/cost  
15 analysis, that's the lesson that you sort of typically  
16 try to include.

17 And there are lots of studies, not just in  
18 the environmental area, but many, many areas where that  
19 kind of basic principle is used and developed, and I  
20 think it is really, I think, roughly consistent with  
21 what Brent was describing -- that is, you want to avoid  
22 a situation where you're spending a lot and not getting  
23 very much for it, and that's a roughly proportional  
24 test.

25 MR. ELDER: Thank you.

26 Bill?

27 MR. SARBELLO: Just a point of clarification.

1 If you're -- for purposes of discussion here, if you're  
2 looking at cost/benefit analyses and you start looking  
3 at incremental costs, will there be a transfer of  
4 money? In other words, if you are killing fish that  
5 belong to the state, will you be sending us a check for  
6 the fish that you're killing so that the incremental  
7 benefit has some real dollar meaning?

8 MR. ELDER: Reed?

9 MR. JOHNSON: It seems to me that that's  
10 EPA's job to effectively impose that incentive on the  
11 industry. That's what we're here to do. EPA's job is  
12 to attempt to make people pay attention to the cost  
13 that they're imposing.

14 I have given a little thought to this, this  
15 wholly disproportionate rule, and puzzled a little bit  
16 over it, wondering why this is so appealing to people.  
17 And I guess one way of thinking about it is that there  
18 is a certain mistrust of the numbers that we're dealing  
19 with, both the money numbers, the dollar numbers, and  
20 the other kinds of numbers that we generate in terms of  
21 the biological impact and ecological impacts.

22 And so maybe one thing that wholly  
23 disproportionate does is to attempt to compensate for  
24 those uncertainties in some way. We think that the  
25 benefits are much bigger than -- we suspect that the  
26 benefits may be much bigger than the biologists are  
27 telling us, and maybe the costs are being exaggerated

1 by the industry, so we're going to use a whole -- some  
2 arbitrary gap, large gap between our measured benefits  
3 and our measured costs.

4 But it seems to me if the problem is a  
5 question of uncertainty, then maybe what we ought to be  
6 doing with benefit/cost analysis is what David  
7 suggests, and that is use it to organize what we know  
8 and what we don't know and how much we don't know --  
9 that is, what's the nature of our uncertainties --  
10 rather than trying to use a decision rule to compensate  
11 for our lack of precision in our estimates. We've got  
12 to think about why our estimates are so imprecise,  
13 rather than trying to use a decision rule to try to  
14 compensate arbitrarily for what we don't know for sure.

15 MR. ELDER: Again, remember it's  
16 hypothetical. We're talking about a case-by-case  
17 approach which could multiply the resource demands  
18 associated with getting the information that David was  
19 talking about, as opposed to doing it on a national  
20 basis where it might be easier to fill in the pieces  
21 and come up with a narrow range of what is a midpoint  
22 economic estimate and what's a midpoint environmental  
23 effects estimate, that type of thing.

24 So those are difficult issues for EPA to deal  
25 with.

26 MR. JOHNSON: Can I respond to that, quickly  
27 respond to that?

1 MR. ELDER: Yes.

2 MR. JOHNSON: Even on a case-by-case basis we  
3 know something. Even if we don't do a big, detailed  
4 study and spend a lot of money on economists and  
5 biologists, we know something. And not only do we know  
6 something, we also know something about what we don't  
7 know, and part of doing a benefit/cost analysis is  
8 describing not only what we know but what we don't  
9 know, and that is, Where are the areas that we need  
10 move information, or where are the areas where it would  
11 be nice to have some additional information but  
12 wouldn't affect our decision, anyway. Knowing what we  
13 don't need to know is also an important part of  
14 benefit/cost analysis.

15 MR. ELDER: Historically, if you were to know  
16 EPA for 10 years, you know the Agency is having a much  
17 more difficult time trying to identify the probable  
18 benefits of environmental actions as opposed to the  
19 dollar cost of environmental action, and people have  
20 seemed historically to disagree more about what dollar  
21 value you ascribe to environmental effects as opposed  
22 to what it is going to cost to install technology.

23 MR. JOHNSON: Can I respond one more time?

24 MR. ELDER: Sure.

25 MR. JOHNSON: You're right. Some  
26 environmental effects are, indeed, very difficult to  
27 value. On the other hand, EPA has sponsored research

1 for nearly 20 years on the economics of non-market  
2 values, and we've made enormous progress in that period  
3 of time. There are certain areas -- for example,  
4 recreational fishing -- where I feel comfortable that  
5 the values we produce for recreational fishing are as  
6 good as what we can produce for commercial fishing or  
7 the cost of capital investments.

8 Other areas are much more difficult. That's  
9 true. But to say that there are some things that we  
10 don't know well in economics doesn't mean that  
11 economics isn't a useful way of organizing what we know  
12 and don't know; moreover, there's a lot of things we  
13 don't know about the biology, as well. That is, it  
14 isn't just that we don't know much about economics;  
15 much of the uncertainty arises from the underlying  
16 biology.

17 I'm not going to take blame for that, anyway.

18 (Laughter.)

19 MR. ELDER: Okay. Let me switch around a  
20 little bit.

21 Kit?

22 MS. KENNEDY: Just a couple thoughts. I  
23 guess it is perhaps my lack of economics training, but  
24 I find this discussion interesting but a little  
25 diffused and hard to nail down. You know, how do you  
26 nail down where we are in terms of an actual test.  
27 That's just an observation.

1           The other thought that I think we have to  
2 bear in mind as we examine this cost issue is that the  
3 cost of technologies is not fixed. And I think, in the  
4 history of environmental regulation by EPA, time and  
5 again when EPA suggests technology-based standards, the  
6 regulated industry says we can't afford that. The  
7 technology is too expensive. And then EPA goes ahead  
8 and sets the standard and, once it is required, the  
9 cost of the technology goes way down. And we've seen  
10 that with the acid rain program, among other things.

11           So, you know, we shouldn't assume that the  
12 cost today or what we think the cost today is going to  
13 be the cost tomorrow. And I don't know how you'd work  
14 that into the rule, but I think that that's important  
15 to understand.

16           The other cost issue -- and I'm not quite  
17 sure which slide it goes to -- is when you look at cost  
18 and you look at, say, wholly disproportionate, are you  
19 -- what are you comparing it to? Are you looking at  
20 the possible impact, the probability, and shareholders?  
21 Are you looking at kind of an incremental cost per  
22 kilowatt hour of energy which a consumer of energy  
23 would pay?

24           And I think, again, we've said we don't see  
25 the basis in the statute for looking at cost at all,  
26 but if you are going to look at cost, a lot of numbers  
27 which appear to be very high, when you divide it over a

1 kilowatt hour basis on the number of consumers you're  
2 going to expect to serve, it comes down to, you know, a  
3 couple of cents a month, and, if you look at it that  
4 way, does not appear to be wholly disproportionate to  
5 the benefits the technology brings.

6 MR. ELDER: Let's go back over here briefly.  
7 What I'd really like to simulate now is, whether you're  
8 an economist or not, do you have any thoughts about  
9 these four examples in terms of their relevance to the  
10 issue of 316(b). And maybe you don't or maybe you do,  
11 but that's where I'd like to try to get the discussion  
12 focused for the next minutes.

13 David?

14 MR. HARRISON: I think, actually, we tried to  
15 -- we had suggested a structure that it's useful to  
16 think of there being a benefit/cost test that would  
17 array the options, and I think Kit just did make the  
18 point that there is some uncertainty about the cost,  
19 too. And one of the nice things about the structure of  
20 benefit/cost analysis is, if there's uncertainty about  
21 the cost, that can be added into the analysis.

22 But I think -- so what we're suggesting, I  
23 think, is the --

24 MR. ELDER: I misstated that. You certainly  
25 did present a structure. I'd like to get some other  
26 members to suggest support for the structure or some  
27 alternative structure.

1 MR. HARRISON: Right. And I guess the only  
2 other issue I was going to mention was the  
3 affordability test and where that fits in. But I think  
4 the notion is that if you look at the various  
5 technologies, there may be some technologies that would  
6 be difficult to implement at a given plant. And I  
7 think we've talked a bit about the fact that the  
8 utility industry is becoming very competitive, and so  
9 in some cases there may not be options to essentially  
10 adopt those technologies and still keep the plant  
11 online. I think that's where the affordability issue  
12 fits in. So it's a slightly different test after we've  
13 done the structure, the benefit/cost structure.

14 MR. ELDER: Theresa?

15 MS. HANCZOR: Yes. The electric generating  
16 industry is the single-largest consumer of fish in the  
17 world. The problem is they don't pay for the fish.  
18 And I think it is time that the EPA focused on ending  
19 that environmental subsidy.

20 In other industries -- what other industries  
21 receive this kind of subsidy? If other industries  
22 cannot compete with certain environmental regulations  
23 or health regulations or whatever, they can't compete  
24 and they might have to close down, and that's part of  
25 doing business.

26 Secondly, I find it rather disingenuous for  
27 the utilities to talk about the cost to the environment

1 at this stage when considering a particular technology.  
2 It seems that by heaping on these environmental costs  
3 to the cost side of the equation, i.e., the economics,  
4 there is an attempt to outweigh the benefit side, and I  
5 don't think that's really what is going on here.

6 Finally, if the utilities were so concerned  
7 about the environmental cost of technology, then why  
8 for so many decades have they held onto antiquated  
9 technologies that kill billions of fish each year in  
10 different life stages?

11 MR. ELDER: Bill?

12 MR. SARBELLO: I also don't feel that the  
13 affordability test should be at a single facility  
14 level. There has to be and will be situations where  
15 facilities with high impacts and low options and maybe  
16 low profitability, indeed, may have to close down, so  
17 it should not be on -- and, indeed, that's kind of the  
18 whole spirit of this free market competition, et  
19 cetera.

20 I'm not intimately familiar with the economic  
21 tests that EPA has developed, but I'm familiar with one  
22 of them that is used in the use attainability analysis,  
23 which is widespread economic dislocation. I'd suggest  
24 that that should be the standard.

25 And, indeed, with some very large facilities,  
26 you may be looking at that, and, indeed, at that level  
27 you may have to make a decision to hold off on

1 implementing something until you can have an alternate  
2 source of power. But it has to be on the issue of  
3 multi-State, widespread economic dislocation, not  
4 whether plan "A" or plan "B" doesn't make a profit.

5 And, as someone else had mentioned, when  
6 there are other EPA standards for toxic chemicals, et  
7 cetera, sometimes it is a cost that someone may have to  
8 go out of business.

9 And I think, again, that a lot of this is  
10 dealt with in some of your assumptions, is that we are  
11 talking in this case about plants that are having  
12 adverse impacts as an assumption of this exercise, and  
13 that we've done everything possible but there may still  
14 be some impacts that can't be mitigated.

15 And just one final thing. On a lot of the  
16 small facilities -- people have said "small  
17 facilities." I don't think facility size necessarily  
18 is the criterion. I think that in most cases small  
19 facilities are going to have small impacts, and really  
20 the issue is that they're facilities with small impacts  
21 and they're probably the most easy to deal with in  
22 terms of some of the technologies available and  
23 applicable at small scales that may not be applicable  
24 at the large scales. So, again, these should be  
25 facilities that should have small impacts, as well as  
26 being just small.

27 MS. TUDOR: So what I heard from what you're

1 saying and what he was saying before fits in here when  
2 we're talking about what other parameters should EPA  
3 consider, and you're both saying in different ways  
4 size and volume of intake.

5 MR. SARBELLO: No. I'm basically saying that  
6 I think that there's -- people have said small  
7 facilities. I think that in many people's minds  
8 they're equating that small facilities are going to  
9 have small impacts, and I think in most cases that will  
10 be the case. But if you have a small facility that is  
11 having a big impact, that may be one that may be --  
12 either needs to close or relocate or take some other  
13 measures -- maybe just relocate the intake -- to do  
14 something.

15 MR. DELGADO: Thank you. I'd be a little  
16 reluctant to jump into the structure of these cost  
17 tests. In terms of cost and effectiveness, I don't  
18 think Congress charged us with the most cost-effective  
19 means of achieving the Clean Water Act goals. They  
20 told us to do it.

21 Now, I wouldn't want to stand in the way of  
22 somebody doing something in a more cost-effective way  
23 than we might otherwise mandate, as long as we're  
24 achieving a higher degree of environmental benefit, and  
25 I think EPA may want to bear that in mind.

26 I'd be careful about really prescribing the  
27 structure of the economic test. Clearly, what we have

1 to do is we have to articulate the economic costs, and  
2 articulate in terms of economic costs of control  
3 measures means to put a dollar amount on them as best  
4 we can. We'd have to articulate the environmental  
5 benefits of what we're getting.

6 In terms of balancing the two, there was the  
7 suggestion that the wholly disproportionate might be  
8 arbitrary or it might be too much in favor of the  
9 environment. I think we have to realize that Congress  
10 told us very clearly what our goals are. Our goals are  
11 to restore and maintain -- our goals are to achieve  
12 fishability. Our goals are to restore the integrity of  
13 the nation's waters. This is what we have to bear in  
14 mind when we're looking at economics.

15 We've got a tool that is somewhat biased  
16 toward protecting the environment. Maybe that's not  
17 wrong. Maybe we have a tool that actually does that  
18 that's biased toward achieving the goals of the Clean  
19 Water Act, so we're doing the homework that we've been  
20 given.

21 MR. ELDER: Bill?

22 MR. WEMHOFF: I guess I would just like to  
23 remind the Agency, as we're talking all these different  
24 tests and all these parameters, to consider that we're  
25 representing again a lot of small communities that own  
26 these small generating facilities. These communities  
27 do have limited resources, both economic, manpower, and

1 other resources.

2 I think that -- first off, I think that maybe  
3 EPA needs to be reminded, but it is so easy to think  
4 about large power plants that are remote somewhere  
5 owned by companies who don't care about the  
6 environment. I don't think that's the case, but I  
7 think there are few that would fall into that trap that  
8 we were just talking about, adverse environmental  
9 impacts and costs and all those things.

10 But the point that I want to make is that not  
11 all utilities are large utilities. There are many  
12 small utilities, there are small communities, there are  
13 going to be small generating facilities with limited  
14 resources. These generating facilities provide very  
15 valuable services to these communities, some of which I  
16 mentioned this morning -- emergency service, those type  
17 of things.

18 What I'm concerned about is that these not be  
19 forgotten by some federal mandate at EPA as to how  
20 these communities are going to evaluate whether they  
21 are going to get to keep their electric generating  
22 facilities or not.

23 Somebody mentioned the acid rain program  
24 earlier. Again, I wanted to remind you that Congress  
25 recognized the value of these communities owning these  
26 generating facilities and exempting them from the acid  
27 rain program, and I think that there's at least a

1 precedent there that EPA take into account the value of  
2 these resources to these communities as they look at  
3 what kind of parameters they're going to consider here,  
4 what kind of cost test they're going to consider  
5 imposing on these communities as they look at what the  
6 adverse environmental impacts are and what's the  
7 correction for them.

8 It bothers me a little bit when I hear  
9 arguments made that no, we're going to draw a box  
10 around the intake structure and we're only going to  
11 look at adverse environmental impacts as they relate to  
12 fish, and all these other things are not to be  
13 considered.

14 I think for a community -- we're not talking  
15 about something remote. We're talking about a  
16 community that owns it for the benefit of that  
17 community. The community experiences the adverse  
18 environmental impacts and the community experiences the  
19 benefits.

20 And I'd just remind EPA to be careful about  
21 imposing nonflexible mandates that dictate to the  
22 community, you know, whether they can or cannot keep  
23 their generated resource.

24 I'm done.

25 MR. ELDER: Theresa first.

26 MS. HANCZOR: On the same note, I'd like to  
27 remind the EPA that not all of the people who are

1 really affected by fish kills could be here today.  
2 And, just as there are small communities that need the  
3 resources of the generator, there are resources (sic)  
4 that need the fish to survive, and fishermen need that  
5 to make a living.

6 So when we're talking about the value to a  
7 community, I think we really have to also look at the  
8 value of a healthy fishery to local communities and the  
9 worldwide community.

10 MR. ELDER: Bart?

11 MR. RUITER: Just to answer the question, a  
12 cost/benefit test I think is the way to go, and also  
13 affordability test.

14 MR. ELDER: Kristy?

15 MS. BULLEIT: We certainly agree that what we  
16 ought to be focusing on is the value of healthy  
17 fishery. From a resources standpoint, our view is that  
18 that is one of the primary environmental factors we are  
19 to be considering for purposes of arraying that against  
20 other costs.

21 I am concerned that we're assuming that there  
22 will be some -- when we look at technologies, there  
23 will be one technology that is obviously the most  
24 effective for all environmental end points, and what I  
25 think David and Reed and others have been suggesting is  
26 that that will not always be true. In fact, you may  
27 have to make trade-offs amongst technologies. And

1 cost/benefit analysis, we prefer it because it takes  
2 into account aspects of cost-effectiveness aspects of  
3 affordability, but it also allows you to array that  
4 information and look at all costs versus all benefits.

5 And just one more point, and that is as to  
6 the question of whether or not who pays for the  
7 resource, we have to -- the goals of the statute are  
8 very laudable. We all want to achieve them. Congress  
9 gave us a specific mandate and a specific set of tools,  
10 and that doesn't include a rule that requires somebody  
11 to write a check for the resources, but we've never  
12 argued that states aren't free to deal with takings  
13 from any source.

14 And I would point out this statute focuses  
15 only on one kind of intake. There are lots of other  
16 kinds of intakes out there. I don't know of any  
17 studies in which anyone has ever examined losses of  
18 fish due to other kinds of uses.

19 I think what we're talking about here when  
20 we're talking about utilities being the largest users  
21 of the resource, if that's true -- and I don't  
22 necessarily believe that. I'd be very interested to  
23 see those figures. My guess is that they would equate,  
24 you know, post-yolk-sack larvae with an adult fish,  
25 which is not, in fact, what is going to happen to many  
26 of those post-yolk-sack larvae.

27 But, that being said, you know, I think the

1 comparison that is likely being made is between  
2 recreational and commercial fishermen, on one hand,  
3 versus this kind of artificial use.

4 In fact, there are plenty of other man-  
5 induced activities that take fish. We just don't have  
6 any data on what those are.

7 MR. BRANDENBURG: And they're not regulated  
8 by 316(b), so there's no omission -- agriculture,  
9 waterfront usage.

10 MR. ELDER: Okay. Richard? Make it short,  
11 please.

12 MR. DELGADO: Okay. I'll try.

13 In terms of --

14 MR. ELDER: Yes, we will.

15 MR. DELGADO: In terms of dealing with these  
16 facilities, I think it is appropriate for EPA, looking  
17 at the possibility of cultivating that and extend it to  
18 performance, to think about sub-categories. We've got  
19 a tremendous variation in terms of size, in terms of  
20 where these possibilities are.

21 And age is also very important for steam  
22 electric plants, because the steam electric plants,  
23 until a few years ago, the metallurgy that's in the  
24 facility constantly improved, giving us higher  
25 temperatures and pressures in our steam cycles so that  
26 the newer plants have the newer metallurgy and they can  
27 be more thermally efficient.

1           So I think you want to be very aware of age  
2 of the facilities, and sometimes you may have a  
3 repowering where you take and -- not an ancient  
4 facility, but it is somewhat the middle-aged facility,  
5 and you redo your boiler. That may be a special sub-  
6 category of its own.

7           MR. ELDER: Okay. Leroy?

8           MR. YOUNG: I would agree that there are a  
9 lot of other activities that take fish, but I know that  
10 in Pennsylvania, if an activity takes fish, that  
11 activity has to pay for that taking, and it could be  
12 pollution, it could be any variety of activities.

13           The inequity is that in this case, at least  
14 in Pennsylvania, there is no payment for those fish,  
15 there's no -- you know, where's the benefit to the  
16 resource? It's all loss to the resource.

17           Even with best technology, there's still  
18 loss, and there is nothing coming back to the resource  
19 from that, so that's a problem that we see, really, at  
20 the crux of why we're involved in these discussions.  
21 It's a missing aspect.

22           MR. ELDER: On this particular topic?

23           MS. HANCZOR: Yes. I just want to get back  
24 to something that Kristy said when I mentioned that the  
25 electric utilities are the single-largest non-paying  
26 consumer of fish, and she said, "Well, you cannot  
27 equate post-yolk-sack larvae with an adult fish, but

1 actually it's probably more serious when you take the  
2 post-yolk-sack larvae because you eliminate their  
3 breeding opportunities altogether, and this eventually  
4 reduces the long-term productivity of them to a much  
5 greater extent than if you remove a post-reproductive  
6 adult. So we do value the post-yolk-sack larvae, we  
7 value the eggs, we value the juveniles.

8 MR. ELDER: Okay. Let's move on to this  
9 third question. What's the appropriate level at which  
10 316(b) costs should be connected to determine the  
11 technology to meet the requirements of 316(b), and the  
12 applicability, be it the facility level -- we heard a  
13 lot about site-specifics this morning -- be it the  
14 company or the utility, as a whole, the aquatic habitat  
15 and neighborhood surrounding the utility.

16 Brent?

17 MR. BRANDENBURG: Jim, there's a number of  
18 categories of costs, and they [inaudible] differently  
19 through these bullets. I would just like to make the  
20 point that the environmental compliance costs of 316(b)  
21 need to be visited at the facility level now more than  
22 ever, and the reason for that is that the cost-  
23 spreading, cost-sharing capabilities that we've had in  
24 years past with these large, multi-unit utilities,  
25 those cost-spreading opportunities are really being  
26 lost as the electric generating side of the utility  
27 business, at least, is rapidly deregulating.

1           You now have facilities that are essentially  
2 merchant facilities. Many of them are owned by people  
3 that are really not in traditional -- thought of as  
4 being traditionally in the utility business. Sometimes  
5 they are the only owner of that facility, and the  
6 entire viability of that facility is whether at any  
7 given moment its generating costs are above or below  
8 the market price.

9           So the compliance costs, to the extent that  
10 they might be substantial for 316(b), definitely need  
11 to be visited at the facility level. That's the  
12 appropriate modeling focus for that particular feature.

13           MR. ELDER: Okay. Kit, would you like to  
14 offer a different perspective?

15           MS. KENNEDY: Yes. I think, yeah, going to  
16 the other spectrum, that the question should be looked  
17 at on a national basis, which I guess falls into your  
18 "industry as a whole" category or -- and the reason --  
19 this goes back to something Bill said earlier. The  
20 power plants, particularly in the age of competition,  
21 should be looked at like any other industry. If there  
22 are environmental costs that are imposed and the  
23 facility can't achieve those standards, then sometimes  
24 the facilities do need to close.

25           And if you're looking at the impact of that,  
26 you should look at it on a national basis. But the  
27 fact that the technology would make a particular

1 facility close, you know, I don't think is  
2 determinative.

3 MR. ELDER: Other thoughts about which of  
4 these approaches might be preferable, or perhaps a  
5 combination approach?

6 Libby?

7 MS. FORD: It seems to me that you really  
8 can't answer this question until you answer the one  
9 from this morning and the one from your last meeting,  
10 which is -- because until you decide what's going to  
11 constitute an adverse impact and then how that is tied  
12 to what is BTA, you can't figure out whether you should  
13 be looking at cost at the facility-level basis.

14 If you're going to be determining adverse  
15 impact and what is BTA at the facility level, then I  
16 think you've got to look at the cost at a facility  
17 level.

18 At the same time, for one who practices as  
19 much or more in the other areas of water and  
20 compliance, the concept of looking at it on a watershed  
21 basis will allow this program to be integrated into the  
22 rest of what we're trying to do on the water quality  
23 and the geographic targeting and the concept of  
24 allowing some type of a trading concept should not be  
25 ruled out, but I think I personally think that adverse  
26 impact has got to be measured on a facility-by-facility  
27 basis, so that starts the cascading chain where you

1           could say the cost test has to be done on a facility-  
2           by-facility basis, but with a possible out, just as in  
3           the rest of the water quality of looking at trading or  
4           some other approach to introduce a more-effective  
5           technology elsewhere that would benefit the same  
6           aquatic community.

7                       MR. ELDER: Lynne, you may disagree with me.  
8           Please do if I say this wrong. I think the logic of  
9           this is there is an assumption that there is an adverse  
10          impact, there is an assumption that somebody has  
11          figured out what BTA is, and once you've gotten past  
12          those two hurdles then you say, "Okay, we figured that  
13          out. Now how can we apply cost? Should it be on a  
14          permit-by-permit basis, or should it be one of these  
15          other alternatives," like you were talking about  
16          possibly a watershed approach, making it theoretically  
17          safe.

18                      What I'm suggesting is kind of a waste load  
19          allocation reversed where you have kind of a fish  
20          intake allocation for the steam segment or something.

21                      MS. FORD: What I think -- to take that a  
22          step further, I know those were the two operative  
23          assumptions we started with, but I would question  
24          whether you really can make the second positive  
25          assumption and really choose what is the best  
26          technology available without, and then only after that  
27          has been chosen begin these steps.

1 MS. TUDOR: We understand the interplay  
2 between the parts and my intent to structure was not to  
3 rule out the interaction between them but to give us a  
4 meaningful discussion. I didn't want to spend the  
5 afternoon discussing this morning's issue and spend  
6 today discussing the last meeting's issues, and only by  
7 trying to get to what issues -- you know, what parts of  
8 what you think about this part, I understand it all has  
9 to tie together.

10 We'll be concluding with that. We just need  
11 to have an organized way of looking at these issues.

12 MR. ELDER: David?

13 MR. HARRISON: I think that a sense of  
14 compartmentalizing the issues with the BTA and with  
15 cost, I think generally -- the way the benefit/cost  
16 came up would suggest that you're making those  
17 decisions. That's a sort of structural issue that we  
18 were talking about.

19 It seemed useful to try and distinguish the  
20 top issue. We can see how they're attracted to that.

21 MR. ELDER: A lull? Are there further  
22 questions?

23 MS. TUDOR: Maybe they don't have any further  
24 questions.

25 MR. ELDER: Yes, sir?

26 MR. WRIGHT: My name is Jim Wright, and I'm  
27 an aquatic ecologist with the Tennessee Valley

1 Authority, which is a natural resource management  
2 agency and an economic development agency and an  
3 agricultural development agency, as well as power  
4 producer.

5 So, in the little bit of a lull of nobody  
6 wanting to talk about the subject of cost, I would like  
7 to address the point that was made earlier about the  
8 goals of the Clean Water Act in restoring biological  
9 integrity and the fact that the electric power industry  
10 is a big remover of fish and is the only one that does  
11 not pay.

12 The Tennessee Valley Authority, with  
13 appropriated funds from Congress, has what we call  
14 "river action teams" which work with all of the  
15 stakeholders. They represent every stakeholder group  
16 we have in this room -- in fact, all of America's  
17 stakeholders -- in each of these watersheds trying to  
18 identify, with nothing on the table, what is preventing  
19 the goals of the Clean Water Act from being  
20 accomplished in those watersheds.

21 And I can say to you -- and I've talked with  
22 every one of the managers -- that never in the last 15  
23 years has one stakeholder identified impingement and  
24 entrainment from an electric power plant as what is  
25 harming the integrity and the restoring of biological  
26 integrity in those watersheds.

27 Let's face it, folks. We have met the enemy

1 and the enemy is us. The people that are keeping the  
2 fisheries in this country from being restored are the  
3 golf courses that we like to play golf on, and the  
4 subdivisions that we like to live in and the highways  
5 that we like to drive our cars on. All of the  
6 unregulated nonpoint sources in this country are  
7 destroying habitat and are destroying fisheries, not  
8 the electric power plants from impingement and  
9 entrainment.

10 This is the question that Al Gore's clean  
11 water initiative asks, and that's what the conclusions  
12 of the President's Clean Water plan are, that that's  
13 the way we can restore the integrity of the nation's  
14 waters.

15 MR. ELDER: Jim, before you leave the  
16 microphone, did you use the term "environmental  
17 managers," before you made your point? Did you mean  
18 the stakeholders would be part of these river action  
19 teams, or did you mean managers within TVA?

20 MR. WRIGHT: I don't remember the context in  
21 which I used that term. I didn't say anything about  
22 managers in TVA.

23 MR. ELDER: Well, you used the term  
24 "managers," and we've talked about -- every one of them  
25 made the point that entrainment and impingement was not  
26 the issue. My question was, Was that a TVA point of  
27 view, or was that a stakeholder point of view?

1 MR. WRIGHT: That was a stakeholder point of  
2 view. I was making the point that in talking with  
3 thousands of stakeholders in a seven-state region,  
4 every watershed we operate in, that never once has a  
5 stakeholder identified impingement and entrainment from  
6 a cooling water intake as the cost of the goals of the  
7 Clean Water Act on fishery degradation on a seven-state  
8 region.

9 MR. ELDER: Okay. I don't think we have a  
10 lull any more.

11 (Laughter.)

12 MR. ELDER: Maya.

13 MS. VANROSSUM: I have to -- I can't let that  
14 go unnoticed.

15 I think there are many contributors to the  
16 many environmental problems we have in this country and  
17 across the world. That's why there are many provisions  
18 in the Clean Water Act and other environmental laws  
19 looking to address them. And we would say that there  
20 probably aren't even enough, and they're certainly not  
21 strong enough.

22 And I think that it is not very productive  
23 and it's not very honest for the power generators, or  
24 whomever it is you were speaking on behalf of, to get  
25 up and say, "We're not contributing. It's you're  
26 fault."

27 Recognize the fact that you make a

1 contribution. Recognize the fact that you have a  
2 responsibility to do something about it. Recognize the  
3 fact that the law requires that and that that's why  
4 we're here, and everybody has that obligation to do  
5 that for what they are contributing to the world, and  
6 don't point the finger at other people and say it's not  
7 our fault.

8 MR. ELDER: I'm glad we avoided  
9 point/counterpoint.

10 (Laughter.)

11 MS. VANROSSUM: I just find it offensive.

12 MR. ELDER: Rich?

13 MR. BOZEC: I have learned that I shouldn't  
14 walk out of the room for 30 seconds.

15 (Laughter.)

16 MR. BOZEC: We were on cost and now we're on  
17 something else.

18 MR. ELDER: That's just because you were  
19 mislead by the overhead.

20 (Laughter.)

21 MR. BOZEC: To address the overhead that is  
22 up there now, I believe that cost test should be  
23 approached at the facility level. For a variety of  
24 reasons, much of what was said, but the reason is that  
25 we don't have vertically-integrated utilities, as in  
26 the past, so that's the first line of thought.

27 What we should look at is how to figure out

1 generations that are deregulated. It's an independent  
2 marketplace. Everything you do is going to increase  
3 cost, and it's going to not only address competition, I  
4 think as the report was pointing to, but it is also  
5 going to address issues of reliability.

6 Now, having said that, I will say one other  
7 point, and that is, If a facility is not where you'd  
8 focus the cost test -- and I would assume -- and I  
9 walked out of the room and I apologize for that -- I  
10 would assume that others have said something like the  
11 utility or the firm is the proper way to go, and I  
12 would counter that because in that holding company that  
13 has unregulated aspects of their business and regulated  
14 aspects of their business, it is lost right now for an  
15 analogy, but it's like you were going to address  
16 something from a multi-national firm and you've got a  
17 problem with their manufacturing facility that deals  
18 with widgets. Should we go after their food  
19 subsidiary? That's the same kind of analogy we've got.

20 So assume it's an operative aspect that  
21 should be focused on, and that is because it is  
22 unregulated and regulated aspects.

23 MR. ELDER: All right. Let me put it back to  
24 you. Isn't it equally logical that you could have a  
25 two-tiered approach and you could still give things  
26 away?

27 David talked about, say, from a macro

1 standpoint, the industrial category as a whole, and  
2 then having a second test related facility-by-facility.

3 You might use Bart's issue about small harm  
4 or small intakes and deal with that at the national  
5 level and then still be able to -- okay, now we have to  
6 move on to the decision tree to say to the electric  
7 utility industry, just to take an example, that are  
8 above a certain size or any size, and then get down to  
9 a facility-by-facility approach.

10 MR. BOZEC: If I understand what you're  
11 saying, I would say yes. There are certainly ways that  
12 EPA can put a framework together that addresses a  
13 variety of different facilities. You've got small,  
14 large, those that have small impacts, and those that  
15 have the large impacts.

16 My point is only that once you start  
17 addressing the cost and then the corollary effects of  
18 how you make public policy decisions based on that, I  
19 would strongly say that you must account for the  
20 segment that I represent by distinguishing between the  
21 regulated and unregulated portions of the whole  
22 facility.

23 Yes, you can meet probably both objectives,  
24 but there is, you know, distinguishing characteristics.

25 MR. ELDER: Richard?

26 MR. DELGADO: National standards I'd like to  
27 see. Generally, have a national basis of cost,

1 hopefully by category or subcategory.

2 We're doing things on a case-by-case basis as  
3 to our current systems, on basically a -- I would hope  
4 that you'd recognize that we'll do whatever we can, if  
5 I can put it that way. In the ideal world, we'd want  
6 to have that cost analysis and looking at the benefit  
7 done on as wide an area as we can. In other words, say  
8 we want to do that on a watershed or a regional basis.  
9 In many cases the regulatory agency doesn't have that  
10 capability. They may not have information from all the  
11 facilities. Some of the facilities may be located in  
12 the jurisdiction of other regulatory agencies. There  
13 may be many reasons why, for one reason or another, we  
14 wind up looking at an individual plant.

15 But from the perspective of looking at it  
16 theoretically, the best way to look at that is on as  
17 wide an area as we can, but sometimes I think you have  
18 to look at it on a plant-by-plant basis.

19 MR. ELDER: All right. Lynne, do you want to  
20 try to elicit any additional comments?

21 MS. TUDOR: No. I think that we have covered  
22 all the points that we need to. We're running about  
23 right on time.

24 MR. ELDER: Yes. All right, with that, let's  
25 have a break until 4:15, and then we'll wrap up and  
26 we'll have 15 minutes at the end.

27 (Whereupon, there was a brief recess.)

1 MR. ELDER: We're almost through today, so  
2 bear with me for a few more minutes.

3 In terms of the wrap-up, we're going to issue  
4 or put up some type of meeting summary tomorrow that's  
5 going to cover all of today and tomorrow. Staff is  
6 going to work this evening on summarizing what happened  
7 today. God bless them --

8 (Laughter.)

9 MR. ELDER: -- for making sense out of that.  
10 So I want to use the rest of today to deal with a  
11 couple other issues.

12 One of them is, I would like to know, EPA  
13 would like to know -- let me say it that way -- if  
14 today's discussion, and when you hark back to the June  
15 29th discussion, are there other issues that are worthy  
16 of future discussion, possibly tomorrow if there's time  
17 or in some other forum.

18 So if you can't think of any right now, I'd  
19 like you to, during your idle hours this evening or  
20 early tomorrow morning, identify some. I think EPA  
21 would be interested in any thoughts you have -- some of  
22 the people I know have already given them -- about  
23 possibly another meeting, possibly in another  
24 geographic part of the United States, that type of  
25 thing.

26 It is also possible that if EPA goes to  
27 another stage of figuring out this road map, that they

1 may want to have a public discussion about that. Who  
2 knows? To me all these things are conceivable.

3 So if you do have other issues or generic  
4 comments, please come up and make them afterward. If  
5 no one is here to talk to you, feel free to write them  
6 on the easel behind me.

7 The next item is Lynne Tudor talked about  
8 this paper that I've discovered she's the author of  
9 that's outside on the table. The title is, "Economic  
10 Analysis in the Rule-Making Process." It looks very  
11 fascinating to me in terms of approaching it from the  
12 big picture in terms of executive orders and recent  
13 statutes that affect rule-making and trying to relate  
14 it to the 316(b) issue. So I command that to your  
15 attention. There's supposed to be close to 200 copies  
16 out there, so everybody should be able to take at least  
17 one.

18 A housekeeping matter -- we're aware that  
19 some people may not be able to make tomorrow's meeting.  
20 If that's true, would you please be kind enough to take  
21 off your badge and leave it on the table outside so  
22 that can be recycled. If you're coming back tomorrow,  
23 feel free to keep your badge and then we will check you  
24 at the door to make sure you turned it in then.

25 And, lastly, unlike today, tomorrow's meeting  
26 will begin at nine a.m. and end by 12, so you'll have  
27 to contend even a little bit more with the traffic,

1       which, personally, for me today was horrendous. So I  
2       hope a lot of people have compressed work week, aside  
3       from all of us, and don't have to come in to D.C. or  
4       Alexandria tomorrow, but it probably won't be that much  
5       better.

6                   Deborah, is there anything else that you'd  
7       like covered?

8                   MS. NAGLE: No. See everybody tomorrow.

9                   MR. ELDER: Okay. Thank you very much.

10                               (Whereupon, at 12:20 a.m., the meeting  
11       was adjourned.)

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13       .

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CERTIFICATE OF NOTARY

I, CHRIS HOFER, CVR, NOTARY PUBLIC, the officer before whom the foregoing testimony was taken, do hereby certify that the witness whose testimony appears in the foregoing transcript was duly sworn by me; that the testimony of said witness was taken by me by stenomask means and thereafter reduced to typewriting by me or under my direction; that said testimony is a true record of the testimony given by said witness; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this testimony is taken; and, further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of the action.

This certification is expressly withdrawn and denied upon the disassembly or photocopying of the foregoing transcript of the proceedings or any part thereof, including exhibits, unless said disassembly or photocopying is done by the undersigned court reporter and/or under the auspices of Hunt Reporting Company, and the signature and original seal is attached thereto.

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CHRIS HOFER, CVR  
Notary Public in and for  
the State of Maryland

My Commission Expires:

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