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REGIONAL RESOURCE STEWARDSHIP COUNCIL

MAY 8, 2003

TENNESSEE VALLEY AUTHORITY
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MR. ED WILLIAMS

1 P R O C E E D I N G S

2 MR. BRUCE SHUPP: Take your seat,
3 please. Good morning. We're going to get started.
4 We still have a few members that we think are coming
5 that are not here. There must be a traffic issue
6 somewhere. I think we better get going because we
7 have a lot of excellent speakers to get on the agenda
8 this morning.

9 I usually welcome the public and
10 guests to our meeting. I don't think we have any
11 today. So welcome TVA staff and welcome Council
12 members and our guest speakers.

13 I'm Bruce Shupp, council chair, and I
14 would like to, for the benefit of our guests, go
15 around the table for individual introductions. If
16 you would start, Lee, please.

17 MR. LEE BAKER: Good morning, Bruce.
18 Lee Baker, manager of Newport Utilities, Newport,
19 Tennessee.

20 MS. ELAINE PATTERSON: Good morning,
21 Elaine Patterson, Olin. I'm representing TVACV,
22 direct-serve industrial customers.

23 MR. KARL DUDLEY: Karl Dudley,
24 Pickwick Electric Co-op in Selma, Tennessee.

25 MR. W. C. NELSON: W. C. Nelson from

1 Blairsville, Georgia.

2 DR. PAUL TEAGUE: Paul Teague,
3 Parsons, Tennessee.

4 MR. JIMMY BARNETT: Jimmy Barnett,
5 Sheffield, Alabama.

6 MS. JACKIE SHELTON: Jackie Shelton,
7 Virginia.

8 MR. BILL FORSYTH: Bill Forsyth,
9 Murphy Electric Power Board, and I'm the economic
10 developer for Cherokee County, North Carolina.

11 MR. ED WILLIAMS: Ed Williams, I'm the
12 representative from Tennessee from Unicoi County.

13 MS. MILES MENNELL: Miles Mennell,
14 Association of Tennessee Valley Government.

15 DR. KATE JACKSON: Kate Jackson, TVA.

16 FACILITATOR DAVE WAHUS: I'm Dave
17 Wahus, and I will be helping to facilitate the
18 meeting.

19 MR. BRUCE SHUPP: This is Kim Nixon,
20 our reporter. I would like -- we have a special
21 guest here today that I would like you-all to meet.
22 We're very, very pleased he could make it, and that's
23 John Palo from the committee of transportation and
24 infrastructure and the subcommittee on water
25 resources and the environment, Congressman Duncan's

1 committee. I would like to ask John to say a few
2 words, if he would, please.

3 MR. JOHN PALO: Sure. First of all,
4 good morning everybody. I want to introduce myself.
5 I am John Palo on the council with the water
6 resources and environment subcommittee, which is a
7 subcommittee to the transportation and infrastructure
8 committee.

9 Chairman Duncan has for a long time
10 had an interest in water resources issues. I came to
11 the committee about a year ago at this point, at the
12 end of the month it will be a year ago. I have been
13 in private practice in the past and have a science
14 engineering background in the area of water
15 resources. So I have a particular interest in the
16 kind of issues that are going to be discussed today.
17 It kind of brings me back a little bit to my more
18 academic days.

19 Mr. Duncan has long had a strong
20 interest in the issue of water resources, you know,
21 competing water uses, water scarcity, water demands,
22 issues of drought, issues of flooding. In fact,
23 yesterday when we were talking, you know, he was very
24 cognizant and very concerned about, you know, the
25 issues of flooding that are happening currently.

1 And at the start of last summer,
2 shortly after I came to the committee, he was
3 starting to raise more and more the issue about water
4 resources, especially because of the drought
5 situation that many parts of the country had,
6 including not only in the Southeast but the mid
7 Atlantic, the D. C. area, and the Northeast, areas
8 where traditionally people take water very, very much
9 for granted.

10 He indicated that he wanted to have us
11 on the subcommittee to start taking more and more of
12 a look at the kind of issues that are out there, the
13 kind of problems that are out there, and to start
14 heading in a direction of seeing, are there -- you
15 know, how are there ways for trying to resolve these
16 kinds of problems.

17 What we then started doing is looking
18 further at this and started to very informally have
19 some conversations with, you know, various
20 constituencies around the country representing all
21 sorts of interest trying to get a little bit more of
22 a lay of the land.

23 One of the constituencies that we
24 talked to and that I spoke to were the folks here at
25 TVA. One of the briefings that I ended up getting

1 from TVA was about the council here, and I guess this
2 was what, about four months ago that we met. I was
3 very, very interested in wanting to come down and
4 observe, you know, strictly as an observer, seeing a
5 forum where all of the multiple interests in a
6 basin -- this is kind of a model here in a sense
7 where the multiple interests in a basin have a means
8 for getting together and trying to learn more about
9 and to talk about and try to resolve issues that may
10 be coming up in a particular basin. This does not go
11 on in many and probably most areas around the
12 country. If anything, there's increasing water wars
13 that we're hearing about, and there's a lack of this
14 kind of cooperative dialogue that's going on.

15 And again, when I heard about this,
16 this sort of a forum going on to be conducted
17 periodically, I wanted to make a point of coming
18 down. I am really happy that I did. I really look
19 forward to just being a proverbial fly on the wall
20 and hearing how the discussions are going.

21 Yesterday I think I still had the
22 front table, HR 135, which is a new Bill that is
23 contemplating the creation of a new water commission
24 to look at various water resources issues. That is
25 pending in Congress right now. Actually, our

1 subcommittee held a hearing on the Bill yesterday.

2 Kate Jackson actually testified at the hearing.

3 There's kind of a joint jurisdiction
4 over this particular Bill, and the resources
5 committee or the House of Representatives had a
6 hearing, I guess it was, about two or three weeks ago
7 on the Bill. The Bills are then going to be marked
8 up, they will be tweaked some based upon -- I would
9 anticipate based upon comments that both the
10 resources committee received and we received.

11 And also, we, as a subcommittee, the
12 water resources environment subcommittee, we're going
13 to be holding a couple of additional hearings in the
14 next couple of weeks, purely a fact-finding, you
15 know, learning-curve kind of hearing to, again, learn
16 more about the issue.

17 We will be having a number of
18 witnesses coming in from various parts of the country
19 and various interests kind of describing -- first of
20 all, probably the first hearing is going to be
21 focused on what are some of the problems that are out
22 there, what are some competing water uses.

23 Then the second hearing tended to be
24 more focused on the issue of problems that we have,
25 how can we try to solve them, what are people doing

1 currently, what are recommendations for -- on what
2 people should be doing at all levels of government,
3 you know, federal, state, local, and also, in the
4 private sector, looking at the whole picture here.

5 And also, I should note that given,
6 you know, we're a federal body, looking at what role
7 the Federal Government either should or should not be
8 playing in this issue. Certainly, everybody on the
9 committee is very, very sensitive to the prerogatives
10 of the states and locals on water use and water
11 rights types of issues. And so we're just looking at
12 this whole thing. There's no specific plan on
13 legislation at this present time, but just it's a
14 learning-curve kind of an experience.

15 And again, my being here today is part
16 of that learning curve, you know, for the committee.
17 I, again, look forward to being that proverbial fly
18 on the wall and listening in, and I will stop
19 rattling.

20 MR. BRUCE SHUPP: Thanks, John.
21 Thanks for being here, appreciate it. Before we get
22 on with the review of the agenda and program, I would
23 like to take the opportunity to say a few personal
24 things about our agenda today. This to me is one of
25 the most fascinating and challenging subjects that

1 the council has undertaken in our two plus years in
2 existence.

3 In the 1960s a very distinguished
4 fisherman colleague that I worked with from the State
5 of New York who worked almost exclusively in the
6 Great Lakes named William Pearson, he was just a
7 tremendous advocate for the Great Lakes and a
8 tremendous advocate for fisheries.

9 He was championing the idea in the
10 1960s, telling the Great Lakes community, the
11 scientific community and the management community
12 that within our lifetime, folks, he used to say, this
13 water, which I think is 20 to 25 percent of the
14 world's freshwater resources, this water will be more
15 valuable to the United States and Canada than oil is
16 to OPEC. He was saying that 40 years ago. I think
17 we're close to that point right now.

18 Just this week in my present business
19 working for B.A.S.S., this week before I came here,
20 which is two days, we counseled three different state
21 federations of ours on how to deal with water
22 allocation issues in their states. Two of them are
23 in the west where they have some unbelievable crisis.

24 We're dealing with it all the time. I
25 hope our speakers today bring out the points -- your

1 viewpoints on whether we are at a national crisis
2 with surface water. I would sure like to share that
3 with the council, your opinions of that, but I think
4 we're getting very close to a national crisis where
5 the government has to take a -- the Federal
6 Government has to take a real big look at our surface
7 water issues.

8 With that, Dave, I would like you to
9 go through the agenda and tell us where we're going
10 today.

11 FACILITATOR DAVE WAHUS: In just a few
12 moments we will be receiving some comments from Kate
13 Jackson, and then following that I will introduce the
14 water quantity management questions. At 9:00 we will
15 have a presentation on the national perspective on
16 water quantity management and water supply by
17 Dr. Black.

18 Following the break we will have four
19 presenters making comments on the regional viewpoints
20 on water quantity management. Following lunch, we
21 will receive some state and local viewpoints on TVA's
22 role with regard to water quality or quantity
23 management.

24 I am already having the problem with
25 the quantity and quality. I am going to say water

1 supply and it makes it less difficult for me.

2 Again, following the break we will
3 have an overview of the current TVA role in water
4 quantity management and water supply by Gene Gibson.
5 And then after we are done asking Gene questions, we
6 will have a discussion on how we're going to address
7 the questions tomorrow, and we will be talking about
8 order and time, et cetera.

9 Dinner this evening at the Marriott,
10 as indicated on your agenda. And then tomorrow
11 morning following breakfast on your own, we'll
12 convene at 8:00 and we will hold about two hours of
13 discussion on the questions. Following the break we
14 will have public comments. We will continue with the
15 discussion on the questions and the drawing of
16 conclusions as to what you want to tell -- what your
17 final responses are that you want to give to TVA.
18 And we're shooting for about a 3:00 adjournment
19 tomorrow afternoon.

20 Any questions on the agenda?

21 I have no changes to what you see
22 printed. Thank you, Mr. Chairman.

23 MR. BRUCE SHUPP: Thank you, Dave.
24 Kate Jackson, TVA Executive Vice President, our
25 fearless leader, has a potpourri, is that the way you

1 say it, of things to discuss with us and things we're
2 going to find very, very interesting.

3 DR. KATE JACKSON: Thank you. Welcome
4 everybody. The weather conditions have forced a
5 couple of the members to make last-minute
6 cancellations and they asked me to give you-all their
7 regrets. One of them, Austin Carroll is dealing with
8 system issues from all of the rain and wind that has
9 gone through his system, and Mayor Griffith is
10 dealing with issues of the tornadoes in Northern
11 Mississippi. So both of them are unable to be here
12 today.

13 And you-all know, we have had some
14 weather over the last couple of days. Really this
15 system that came in, three systems in a row, one
16 after another, have really challenged the limits of
17 our ability to manage that water. You know that we
18 have all been very sensitive about saying flood
19 management, not flood protection or control, and you
20 see why today.

21 So one of the things that I just
22 wanted to highlight is we're going to have an
23 operations -- just an overview from Morgan Gorenflo
24 here. He will tell you about the system status and
25 what has happened over the last several days.

1 Although, I am not sure he's actually had any sleep
2 over the last several days. So if he's grumpier than
3 usual, you will understand why. So go.

4 MR. MORGAN GORENFLO: I have got one
5 overhead. I have had three doughnuts, a diet Coke
6 and two cigars this morning, that ought to get me to
7 9:00 anyway.

8 Don't want to -- the rainfall really
9 started Monday. We've had essentially like a 48-hour
10 event, a series of systems that have moved through
11 the Valley. As usual, we have no control over where
12 the rainfall falls.

13 This is early May. The main river
14 reservoirs were at normal summer levels, which means
15 that you have limited storage capacities on the main
16 river. Most of the storage tributaries were at their
17 seasonal flood guide, which is relatively high for
18 this time of year.

19 On the screen on the -- so you can get
20 an idea of the shape of the Valley, the circled
21 numbers are the amount of rainfall that we had over
22 those corresponding areas. Those are not high-spot
23 rainfall events, those are averages over the
24 watershed areas.

25 As you can see, in the northeast part

1 of the Valley we had an inch or less. South Holston,
2 Watauga, Cherokee, Norris, you'd never know that we
3 were in a flood control operation.

4 At Douglas we had a little over three
5 inches over the area, that's taken us right up near
6 the top of the gates. Today we're having to spill
7 water out of Douglas.

8 At Fontana we had a 6-inch average.
9 It came up something like 17 feet. We had to go to a
10 rate of discharge of 25,000 out of Fontana. It's the
11 first time I had to use the spillways in the last ten
12 years. It's a rather spectacular sight. We will be
13 spilling through Friday, if anybody wants to fight
14 the 321 curves between here and Fontana, they can go
15 look at it. If you really want to look at it, you
16 can charter a helicopter, believe me, it's worth it.

17 On the Hiwassee system, we did run out
18 of storage at Hiwassee. We actually went a half foot
19 over the top of the gates at Hiwassee. We had to
20 release 14,000 out of Appalachia last night.
21 Chatuge-Nottely, we were able to hold what we have
22 got, we have held those off. We got 5 inches at Blue
23 Ridge.

24 The real concern point, if you look at
25 the 5 inches around Fort Loudon, the 5 inches at

1 Watts Bar, and the 8 inches over the Chickamauga
2 local drainage area, all of that rainfall happened on
3 reservoirs where you have got roughly 2 feet of
4 storage or about a half inch of runoff space and you
5 have got to cram all of that water in there, which
6 obviously you're not able to do.

7 What that resulted in was us going to
8 about a 36-foot stage at Chattanooga this morning.
9 That's 6 feet above flood stage, the second highest
10 stage in Chattanooga since TVA was created. We have
11 probably got about 480 structures with water in them.
12 It will probably stay at flood stage for most of the
13 day today. It's a very serious situation.

14 The Little Seven immediately
15 downstream is the South Chickamauga Creek area. It
16 has reached record levels today. It's going to crest
17 at about 30,000 CFS. So that, along with the water
18 that we're having to release out of Chickamauga, is
19 resulting in the 36-foot stage at Chattanooga.

20 We surcharged Fort Loudon, went to
21 record high levels at Watts Bar reservoir and at the
22 Chickamauga reservoir. So we have completely, I
23 guess, overutilized the capacity of the main river
24 reservoirs, and it's the result of having more
25 rainfall.

1 If anybody's interested in water
2 supply, I am sure Chattanooga has got a very cheap
3 price if anybody wants to buy some this morning.

4 Further down the Valley we had
5 8 inches at Normandy, 5 inches at Tims Ford. We did
6 run out of storage room at probably five or six of
7 the tributary storage projects. So it's a -- it's a
8 very critical situation. Certainly, if we make light
9 comments about it, it's really to break the tension
10 in the forecast center.

11 When y'all go home, I don't know if
12 your spouses -- when you go home if you watch soap
13 operas and ball games, God help us, we go home and
14 watch the weather channel and our spouses watch the
15 weather channel with us. So it's -- that's kind of
16 the life of a river forecaster.

17 Obviously, this is one of those events
18 when you walk into the office on Monday morning
19 without much warning. I think the river probably
20 rose faster down in Chattanooga in this event than it
21 ever has before. It went up probably 17 feet in a
22 day.

23 So the floating operations with the
24 barges, as well as getting the notice out to
25 everybody, we were almost in constant contact with

1 the emergency management agencies there. So this is
2 kind of why you do the drill of getting ready for
3 this type of stuff because there's just not much
4 advance warning when you get a really heavy rainfall
5 event.

6 Any other questions? We will be glad
7 to answer them.

8 DR. KATE JACKSON: Thank you, Morgan.
9 I appreciate that.

10 MR. MORGAN GORENFLO: Okay.

11 DR. KATE JACKSON: Before I turn the
12 agenda back over, I will just -- I would like to do a
13 couple of housekeeping items while we have got
14 everybody here.

15 We're setting a date for the council
16 to receive a briefing on the Reservoir Operations
17 Study. Dave Nye and that ROS team will provide that
18 briefing. We're trying to get it scheduled sometimes
19 in early June. It will probably start in the morning
20 and go just past lunch. So we will work on that
21 exact date and time to make sure that you-all get
22 that briefing as soon as we possibly can.

23 And the goal really is to help you
24 prepare to assist your constituents before the public
25 meetings begin, which are scheduled to begin

1 July 21st. So you will have an opportunity to see
2 what's happening and then do some preliminary
3 communication with folks so that we can get the
4 issues out and get good comments and good attendance
5 at those public meetings.

6 And you should really not hesitate
7 also in the meantime, if you have questions about the
8 ROS, to talk to the people who are in this group who
9 are also members of the public review team, and those
10 people, just to remind you, are Miles, Greer, Austin,
11 and Tom Vorholt. So, you know, use them as sources,
12 if you will.

13 I was going to talk a little bit about
14 HR 135, but John did that for me. So I don't need
15 to. It's to establish a 21st century water
16 commission, looking at those issues of competing
17 water supply, drought issues, technology issues
18 associated with federal utilization of water.

19 My testimony is there just so you will
20 have that information of what I testified on. It was
21 a very interesting hearing, and I'm really gratified
22 to recognize that we're all now talking about water
23 supply issues and how important they are.

24 It really indicated to us deciding
25 that this was an important meeting topic for us to

1 talk about and get your advice and get your advice
2 and your views on not just what you're thinking about
3 but also TVA's role in some of these issues.

4 And lastly, while I have got everybody
5 here and because I know we're going to lose a couple
6 of people, I want to talk about scheduling next the
7 council meeting because we've really struggled with
8 this one.

9 I have got three dates to offer, and
10 Dave is going to toss them up on the wall. And if
11 you then, Dave, could facilitate a discussion about
12 these possible dates. They are all good with us. So
13 we will go from there. You can see those, it's
14 September 10 and 11 or 11 and 12, October 1 and 2 or
15 2 and 3, October 15 and 16 or 16 and 17.

16 FACILITATOR DAVE WAHUS: Does anyone
17 have a serious conflict with any of these dates that
18 we want to take off the schedule?

19 Paul

20 DR. PAUL TEAGUE: Which one of those
21 is a home game for Tennessee football?

22 FACILITATOR DAVE WAHUS: I believe
23 these are all Tuesday and Wednesday, Wednesday and
24 Thursday type dates.

25 DR. PAUL TEAGUE: That doesn't help.

1 DR. KATE JACKSON: He still questions
2 that.

3 FACILITATOR DAVE WAHUS: I don't know
4 the answer to your question.

5 DR. KATE JACKSON: We can find that
6 out certainly.

7 MS. MILES MENNELL: October 15th
8 doesn't work for me, I have a board meeting.

9 FACILITATOR DAVE WAHUS: Okay.

10 MS. MILES MENNELL: That's a
11 Wednesday, I think, isn't it?

12 DR. KATE JACKSON: Uh-huh.

13 MR. PHIL COMER: October 2nd doesn't
14 work for me.

15 FACILITATOR DAVE WAHUS: So that would
16 take out the second line there completely because it
17 would -- given the other dates, September 10 and 11,
18 11 and 12 or 16 and 17, are there any preferences?

19 MR. BRUCE SHUPP: 10 and 11.

20 FACILITATOR DAVE WAHUS: 10 and 11, is
21 there anyone who objects to September 10 and 11?

22 MR. ED WILLIAMS: Book it.

23 FACILITATOR DAVE WAHUS: Okay. That's
24 your first priority. In the event something comes up
25 on TVA's schedule, is there a second alternative?

1 This would be first. And then the
2 11th and 12th of September or the 16th and 17th,
3 which is your second preference? The 11th and 12th
4 of September or the 16th?

5 MS. ELAINE PATTERSON: 11th and 12th.

6 FACILITATOR DAVE WAHUS: 11th and 12th
7 is your second preference. So you have a first and
8 second preference.

9 MR. BRUCE SHUPP: Location?

10 DR. KATE JACKSON: I assume here,
11 that's what we have talked about.

12 MR. BRUCE SHUPP: Any problems with
13 that, anybody?

14 FACILITATOR DAVE WAHUS: Thank you.

15 MR. BRUCE SHUPP: Thank you. We have
16 two of our members who just came in. I'd like them
17 to introduce themselves. Mr. Comer.

18 MR. PHIL COMER: Phil Comer from
19 Dandridge. The reason I am late is I stopped by
20 Douglas Dam on the way down this morning. The water
21 is up over the parking lot, so there's been that much
22 going over the top of the flood gate, but everybody
23 is doing what they are supposed to do.

24 DR. KATE JACKSON: Good.

25 MR. BRUCE SHUPP: Stephen.

1 DR. STEPHEN SMITH: Morning. Stephen
2 Smith. I don't have a good excuse for why I'm late.

3 FACILITATOR DAVE WAHUS: Just a quick
4 administrative announcement. Anyone looking for the
5 restrooms, if you go out the door and take two rights
6 past the elevator, you will find them down there.

7 MR. BRUCE SHUPP: Okay. We have, as I
8 said earlier, a very, very interesting -- before we
9 get into the program, Dave wants to take us through
10 the water quantity, water supply management questions
11 that we have been asked so we can all -- so we can
12 prime that on the top of our brain before we start
13 listening to all the information we're going to be
14 given today.

15 FACILITATOR DAVE WAHUS: The last
16 council made three recommendations dealing with water
17 supply, and I would like to -- before we go through
18 the six questions that you have been asked to address
19 during this meeting, I would like to just refresh
20 your memory for those of you who might have been --
21 who might have served on the last council or for
22 those of you that did not.

23 One of the recommendations was that
24 TVA should initiate and coordinate research into the
25 extent of future stresses and demands on the

1 Tennessee River Basin water supplies. Rather than
2 reading the next paragraph to you, I am sure that all
3 of you can read, so I am just going to give you an
4 opportunity to take a second and read TVA's response.

5 The second question or the second
6 recommendation made by the council was that TVA
7 should continue to make wise use of its authority to
8 manage the waters of the Tennessee Basin to provide
9 for water supply, hydropower, navigation, and
10 irrigation while providing for the stewardship of
11 fisheries, biodiversity, water quality, and natural
12 resources, and again, I'll let you read their
13 response. I will try to get it all on here so you
14 can see it.

15 The third recommendation -- I will
16 figure out how to operate this by the time I get
17 done. The third recommendation was that TVA should
18 take leadership on water quality management and
19 regulatory issues on the Tennessee Basin. Again,
20 it's a long recommendation, and I'll give you an
21 opportunity to read that recommendation and TVA's
22 response.

23 I would like to draw your attention to
24 the very last sentence. It says, the next step will
25 just be to schedule a meeting of the RRSC devoted

1 solely to the discussion of this issue, and we are
2 here.

3 These are the questions -- there we
4 go. These are the questions that you have been asked
5 to address. You have had these questions for a
6 couple of weeks so that you could look at them and
7 talk to your constituents about these issues.

8 We will be discussing these tomorrow.
9 Keep these in mind as we have our discussions. This
10 afternoon at 4:30 or 4:00 we are scheduled to talk
11 about procedures as to how we're going to address
12 these questions.

13 I would suggest that you be thinking
14 today as you're listening to the discussions, are
15 there -- is there a particular order in which you
16 want to discuss these questions. If there are some
17 really easy questions, do you want to get them done
18 first. So we will be talking at 4:00 about the
19 order.

20 We have four to four and a half hours
21 tomorrow of productive discussion time to address
22 these questions. So it's -- we're going to have to
23 identify the amount of time that you would like to
24 spend on each one of these, and then I will do my
25 best to keep you on schedule and, of course, on

1 subject, but we need to be thinking about that. We
2 will discuss that issue about order and time at 4:00
3 this afternoon.

4 Does anyone have any questions about
5 these questions or about anything I have just
6 discussed?

7 Mr. Teague?

8 DR. PAUL TEAGUE: I want Kate to tell
9 us in her testimony what was their response to the
10 way we are approaching this and is this -- is there
11 anything that you can give to us from that meeting
12 that would help us determine the --

13 DR. KATE JACKSON: Really what the --
14 what the testimonies were set up to do was to show
15 different perspectives. There was a woman who was
16 representing stakeholder interstate water compact
17 development sort of from the stakeholder perspective.
18 There was the mayor of Augusta who was the head of
19 the Council of Mayors talking about sort of the local
20 government issues, the General from the Corps of
21 Engineers, and me.

22 And really, I think, what the
23 subcommittee was attempting to do is to say, what are
24 those issues? Should you include groundwater and
25 surface water? Should you examine across

1 institutional boundaries and jurisdictional
2 boundaries? Is managing on a watershed basis
3 important?

4 And I think one of the things that
5 John mentioned is TVA is, and we keep saying this,
6 unique. We were established to manage the whole
7 watershed and sort of negotiate all of the benefits
8 and balance all of those to the extent that it's
9 possible for the whole watershed, and that's very
10 different than the way other reservoirs or systems of
11 reservoirs are managed.

12 And so I -- my personal belief is that
13 the focus is now on, how do you get the right people
14 together to begin to have that watershed-wide
15 discussion of, how do we plan for a sustainable water
16 supply in an integrated way for the future?

17 And actually, I think that TVA is a
18 wonderful model to begin talking about that because
19 one of the questions that was asked of the General
20 from the Corps of Engineers is how many federal
21 agencies are involved in water supply, and there are
22 22, 22 congressional jurisdictional committees that
23 oversee water issues.

24 Well, you can see it's incredibly
25 fragmented and so -- and that's only at the federal

1 level. Then there are Native American tribes,
2 cross-country issues, interstate issues. Obviously,
3 water supply is a state's right issue.

4 So, you know, how do you begin to
5 bring folks together? And so it was asking exactly
6 the question that you just asked, how should we
7 proceed?

8 And there's a watershed boundary you
9 can see, there are state boundaries you can see, but
10 groundwater aquifers cross in different ways under
11 that. So how can we begin thinking about all of
12 those difficult boundary questions in ways that bring
13 people together as opposed to polarizing them?

14 And I think one of the most difficult
15 things with drought management or demand-side
16 management in water issues is that it's -- there's a
17 crisis in water supply, but unlike other crisis, like
18 tornadoes and hurricanes and floods where communities
19 come together to support each other, drought and
20 water supply drive people apart.

21 So how do we begin some sort of
22 vehicle -- an institutional vehicle to have that kind
23 of integrating force, I think that's the question the
24 committee is really asking. It's a great question.

25 DR. PAUL TEAGUE: Well, we're supposed

1 to answer based on just the TVA, and by that I mean
2 the Tennessee Valley for these questions, or should
3 our consideration go further than that as a model for
4 more than just the Tennessee Valley?

5 DR. KATE JACKSON: Well, the views
6 that you express to us we can only implement within
7 the Tennessee Valley, but certainly if there are
8 models that we can transport here or demonstrate here
9 that could be transported elsewhere we're very
10 interested in that. So that's why we wanted to get
11 other regional perspectives and other national
12 perspectives on how -- what are the issues more
13 broadly than just in the Tennessee Valley. So ask
14 that question of these folks when they are in those
15 chairs.

16 FACILITATOR DAVE WAHUS: You-all have
17 a copy of the questions in the package that was on
18 your desk. And in addition to that, you have a copy
19 of HR 135 in the package that your agenda was on the
20 cover of.

21 Mr. Chairman.

22 MR. BRUCE SHUPP: There you go. Paul,
23 I think most of us share your hesitancy to dig into
24 this issue, and that's why we have this gifted group
25 of speakers today is to try and give us some

1 information and to put this in perspective. Nobody
2 is dealing with this issue in the country in a
3 rational and effective way. So this is a tough
4 question and we're trying to answer very specific
5 questions that TVA put to us at this meeting.

6 To get us started, I would like to
7 mention to our speakers that you can see our agenda
8 is very time limited and we'd ask the speakers to try
9 to stay within the time limit. Every speaker -- the
10 panels of speakers that we have will be making their
11 presentations without questions from us so they can
12 get through their prepared remarks, and then there
13 will be a question-and-answer session after each
14 panel. That's the most effective way we can use our
15 time and their time.

16 To kick it off on the national
17 perspective is Dr. Peter Black, who is a retired but
18 very active former distinguished teaching professor
19 from the State University of New York, College of
20 Environmental Science and Forestry which is at
21 Syracuse, New York.

22 Dr. Black is a trained forester, but
23 most of his work has been -- his Ph.D was in
24 watershed management from Colorado State. Most of
25 his work is -- has been related through hydrology,

1 and he is currently organizing the American
2 Watershed -- tell me what that is, Peter.

3 DR. PETER BLACK: American Water
4 Resources Association.

5 MR. BRUCE SHUPP: Association
6 Sponsored International Congress on Watershed
7 Management for water supply systems, which will be
8 held in New York City from June 29th until July 2nd
9 of this year.

10 Dr. Black has published three books
11 entitled, Environmental Impact Analysis, Conservation
12 of Water and Related Land Resources, and Watershed
13 Hydrology. He is a certified professional
14 hydrologist, and he comes to us today to address the
15 national issues.

16 Dr. Black.

17 DR. PETER BLACK: Thank you. Thank
18 you, Bruce. You know, I've got to start off telling
19 you that when I started out in my professional career
20 and went to the Coweeta Hydrologic Laboratory in
21 Western North Carolina, that first year they got two
22 5-inch snowstorms in the mountains in South Carolina,
23 North Carolina.

24 I moved to Arcadia, California and
25 they got two 5-inch snowstorms in Arcadia. They

1 hadn't had snow there in 25 years.

2 I moved to Syracuse, New York in 1965.
3 The first year I was there, the first winter, they
4 had a 36-hour period where we got 54 inches of snow.
5 I should have warned you.

6 All right. Be thankful that the storm
7 came in a time that it was warm. Otherwise, with 14
8 inches of snow -- 14 inches of rain, you'd have about
9 140 inches of snowfall. So look on the positive
10 side.

11 I am glad to be here and to be back
12 and glad to join you today. I'm -- I was thinking as
13 Kate Jackson was talking about the TVA about what a
14 challenge it must have been to the people who lived
15 here in 1933 and 1934. And cast your minds back
16 then, think about what they created, about the
17 tremendous amount of earth moving, about the
18 tremendous change in cultures, the way of approaching
19 and controlling your own environment, and that was a
20 tremendous challenge that they made.

21 I know if you have read David
22 Lilienthal's book, Democracy on the March, you have
23 had a great exposure to that challenge. There's been
24 other publications on it, too. That one happens to
25 stick in my mind as being one of the real exciting

1 stories about this particular enterprise.

2 The challenges that we're facing now,
3 I think, are no less and they have some different
4 aspects to it. One is the creation of partnerships
5 on a scale that we're not maybe fully ready to deal
6 with and then maybe are not entirely clear as to how
7 to proceed, and that's one of the things we want to
8 talk about today.

9 I am glad to say that the remarks that
10 I put together feed into a lot of the stuff that was
11 already talked about. So let me proceed with those.
12 I have got some -- I have got control of that here.
13 Oh, there we are. I took that picture the last time
14 I was down here, had some time after the meeting to
15 go look around.

16 Perspective, October 2000, I put these
17 slides together and revised them last night and put
18 some additions in. I'm not sure what's coming up.

19 Just in context, all right, the
20 world's human population is currently six and a half
21 billion individuals, one-third of which does not now
22 receive sufficient water, one-third. Two and a half
23 billion people are considered worldwide not to
24 receive sufficient water.

25 One-half of the world's population

1 lives in cities of one million humans or more. That
2 happened last October. For the first time in the
3 history of the world, one half of the population of
4 the globe lived in cities in excess of one million
5 people.

6 There are 400 -- I think the number is
7 400 cities, 400 urban centers, if you want to call
8 them that, that have a million or more people in
9 them. That's just to give you some idea of the
10 population problem, which I think is paramount.
11 There's 6,000 children a day that die because of bad
12 water.

13 To what extent does the Tennessee
14 Valley Basin follow the same pattern? It's a
15 question we may want to investigate. I started to
16 get some numbers but the -- I didn't have good enough
17 population numbers for the rural populations in the
18 Valley.

19 The Zambeze, Yellow, and the Colorado
20 River all run completely dry in a normal dry season;
21 that is, they no longer provide water to the sea.
22 That's not a problem with the Tennessee, hopefully it
23 won't be, but there's certainly an interaction of
24 supply and population growth.

25 There's a problem for challenge

1 integrating with power supply and navigation demands,
2 and we have to think a little bit perhaps about what
3 we can expect in the Tennessee Valley in the way of
4 climate change.

5 I'm afraid I'm doing that. It's
6 already into the slides. That's going to control how
7 fast we go. So we will have plenty of time for
8 questions.

9 This is from the book by Joel Cohen,
10 How Many People Can the Earth Support, the fraction
11 of the human population living in places with 20,000
12 or more people rose from 2 percent to over 20 percent
13 in 200 years.

14 So if the TVA has -- embraces an area
15 that has the same type of distribution, as I
16 intimated might be the case worldwide, we might want
17 to take a look at that and see what the significance
18 is. I have got some time for that coming up later.

19 Just another observation of Joel
20 Cohen, in 1800 and 1990, so again about 200 years,
21 the fraction of people who lived in cities surged
22 from perhaps 1 in 50 to nearly 1 in 2.

23 What is that number in the Tennessee
24 Basin?

25 That might be an important number to

1 know, and I will explain why that's true. So a
2 128-fold increase in the total population that
3 increased only six times. As you go from 1 in 50 to
4 1 in 2, that's a 128-fold increase in the density of
5 the population.

6 Now, the current city dwellers is 1.4
7 billion, that's about 1/6th, not quite 1/6th, that
8 live in less developed regions of the world. Those
9 are from Cohen's book, which if you have not read it
10 and want to read a really sobering approach to the
11 population problem, you want to take a look at that.
12 He asked the question in the title, How Many People
13 Can the Earth Support, and doesn't answer it and
14 admits to not answering it and explains why.

15 What are the implications for TVA?

16 What are the current big city demands
17 on the river?

18 That's one of the questions that we
19 perhaps need to consider in more detail. I'm not
20 sure I know the answers to these, but I am going to
21 pose the questions.

22 Is there a similar percentage
23 distribution in the Tennessee Valley?

24 About a million people live in urban
25 communities along the Tennessee River, which is about

1 as near as I can figure.

2 Is that about right, in major cities?

3 Then I added up the contributions of
4 the major urban areas, but I have no idea about rural
5 population. The actual number, you know, it's
6 important to the individuals, but to the balance it
7 may be very important because we're going to see some
8 shifts and it's those shifts that may be particularly
9 important.

10 How does the Tennessee River
11 management fit in with the water resource management
12 outside of TVA?

13 We talked about this last night about
14 the desire to get water to Atlanta. I shouldn't
15 mention that here, should I, the watershed cities
16 downstream, Atlanta and other off watershed cities'
17 needs?

18 We may figure that we don't have much
19 responsibility for Atlanta, but Atlanta might figure
20 otherwise and the Court might determine otherwise.
21 What you decide here in the basin may be dictated by
22 some forces outside the basin over which you have
23 little control and they want to talk about being
24 prepared for that.

25 How can the Tennessee be managed so as

1 to coordinate as a positive approach the physical and
2 quality management strategies of the downstream
3 states? What are their requirements?

4 Remember, the flood control on the
5 Tennessee, considering the fact that most of the
6 basin was not developed 75 years ago in the sense
7 that it is now, certainly most of the flood control
8 purposes were to alleviate floods on the Mississippi
9 and the Ohio. Now we're talking about flooding now
10 in Chattanooga and along the main stem, that's a
11 different flood control that we're concerned with.

12 I told you this was going fast. I
13 missed the last thing entirely. I can back up,
14 right?

15 How to integrate off-water power in
16 the navigation demands and what is the role of the
17 federal agencies?

18 I do want to take a brief look at the
19 role of the federal agencies probably as a refresher
20 and also maybe with some outside views of what those
21 agencies are. So we will take a look at that.

22 I was impressed primarily because
23 this -- I will speed this up here. This was
24 presented at a meeting I was at two weeks ago by
25 Steve Ike from the New York State Department of Land

1 and Conservation, and he talked about this, think
2 globally, act locally, you know, what we use to
3 motivate people when we think about the environment
4 and so on.

5 And it's been around for a long time
6 and implies what we should do locally based on the
7 big picture, but the fact of the matter is that we
8 want people to do things from the bottom up, grass
9 roots, and the phrase implies the opposite.

10 Have you ever thought about that?
11 Think globally, act locally is not grass roots
12 necessarily.

13 Now, there may be ways to marry those
14 two concepts, but they provide a tremendous
15 challenge. And I credit Steve Ike at a meeting a
16 couple of weeks ago of giving me that idea and
17 thought, but we want to keep it in the back of our
18 mind.

19 If watershed demand is fairly low, and
20 even though I -- that's supposed to be B, right?

21 Those values are all -- see, that's
22 the estimate of the water use in the United States.
23 I just picked it up. For the demands in the
24 watershed itself, they are not really very high.

25 The watershed, of course, is well

1 pressed with water. There's some problems with the
2 deliveries and there's some problems with floods and
3 there's challenges, of course, of making use of the
4 tremendous infrastructure that we have in terms of
5 power production and flood control and we have got
6 some work to do there.

7 There's 41,000 square miles on the
8 watershed. The power service area provides
9 electricity for customers in 80,000 square miles,
10 much larger -- double the size of the basin. So the
11 power service area is one that we want to keep in the
12 back of our minds, because like water supply, it goes
13 beyond the basin.

14 To consider: What agencies in the
15 Federal Government are doing what about sustainable
16 water supplies?

17 I will take a very quick look at these
18 agencies, including the fact that the BLM -- is the
19 BLM involved much in the Tennessee Valley?

20 By and large it's a western agency,
21 but I raised the question because they have become
22 involved -- oh, I take that back. It's the Bureau of
23 Reclamation that's been involved in the northeast.
24 It's a western agency also.

25 Is the BR involved much in Tennessee?

1 It isn't. It just got involved in the past 15 years
2 on the lakes in Syracuse, and that's a rather limited
3 involvement. So we're not going to pay much
4 attention to the BLM and BR.

5 One of the prime national level legal
6 issues is the Native American water rights, wetlands,
7 and endangered species. International issues are
8 probably not much of a TVA issue. There's some
9 questions about who owns the surface and groundwaters
10 and our ability to identify which groundwaters become
11 surface waters and when is an area that we want to
12 take a look at perhaps more on this basin.

13 The applicable water laws, that's
14 seven states, and they have different water laws that
15 are privatization issues dealing with water supplies,
16 in particular. You've got stakeholders' perspectives
17 on policies, what's in it for the average water user.
18 Levers, give me a fulcrum and a lever and I will move
19 the earth.

20 What can we do?

21 We can do a lot.

22 What kind of drivers and what kind of
23 initiatives are there that can take place on the
24 watershed?

25 It's interesting, if you take a look

1 nationally there are -- probably years ago there was
2 something like 2,000 watershed initiatives, watershed
3 councils, watershed associations, NGO at the
4 watershed level, 2,000 of them on the web. I don't
5 know how many of them there are now. It's probably
6 two or three times that at least.

7 Are there watershed initiatives in the
8 Tennessee Valley?

9 Do they have to find a way to be
10 active within the TVA?

11 They do. So that's one of the things
12 I am not familiar with within TVA, but it's something
13 you may want to address in filling up those
14 partnerships.

15 Let me back up. Climate change, the
16 question is really when. The population increases
17 and the question is when. Those are things that I
18 will come back to. I am not glossing over those at
19 all.

20 Let's take a brief look at Agency's
21 missions and policies. The Corps of Engineers, of
22 course, was established back in 1774. Its
23 responsibilities are four primary missions,
24 navigation, flood control, environmental restoration,
25 what did I leave out, oh, wetlands. That's what

1 happens when you put different colors in.

2 The three primary missions, wetlands
3 they came into, of course, because of their
4 involvement with the Section 404 of the Clean Water
5 Act. The Bureau of Indian Affairs is involved
6 because we have got the Bureau of Indian Affairs of
7 lands, lands for which the BIA is responsible on the
8 watershed. They are particularly responsible for
9 forest and land management, and, of course, the
10 economic well-being of the Native Americans.

11 There's some very interesting history
12 that just happened with the BIA. It has gone from an
13 original purpose of containment to one of
14 assimilation and then eventually termination and then
15 finally celebration of the culture of the Native
16 Americans.

17 I was trying to back up that once and
18 overdid it.

19 I always like pointing out the story
20 in this that termination, of course, was a very
21 controversial policy of the Bureau of Indian Affairs
22 for many, many years and the -- it came to a head
23 really in the -- in a comment that was made by then
24 Secretary of Interior Watt.

25 Do you remember James Watt?

1 He at a certain point proposed that
2 the termination be eliminated as a purpose or a goal
3 of the BIA, and I'm sorry, that it be reinstated,
4 that it be reinstated as a goal of the BIA. And it
5 was done at a time when the Native American water
6 rights was becoming a major issue.

7 As a consequence, the opportunity for
8 doing away with the water rights owned by the Native
9 Americans became a possibility if his attempt to have
10 termination of the Native Americans' reservations
11 went into effect.

12 It would do away with the Native
13 American waterway rights, which has been a major
14 problem in the western states, in particular, but
15 there's also been involvement with the land rights in
16 the eastern states. Enough of that. It's an
17 interesting sideline to whomever watches behavior of
18 the Secretary of Interior.

19 The U.S. Geological Survey created in
20 1979 is involved with mapping, quantity, quality, and
21 data collection of analysis, and, of course, the
22 benchmark watershed program.

23 The Forest Service is charged with
24 multiple use administration and management of
25 national forests. There's the state and private

1 cooperative programs, and they also have an
2 international branch. The Forest Service, of course,
3 is very much involved in resources management on the
4 Tennessee Valley probably more than most other
5 federal agencies.

6 Although, the National Park Service is
7 up there. Having been created in 1916, it has that
8 dual conflicting purpose of preservation and use of
9 the national parks, monuments, and historic sites.
10 It is of particular importance for the land that it
11 administers and of particular importance even though
12 they are relatively small in numbers of acres
13 compared to the Forest Services nationally and within
14 the basin, but they are particularly important
15 because they are very often high elevation lands,
16 such as the Smoky Mountains, and they yield very high
17 runoff.

18 And maintaining -- by the way,
19 maintaining the watershed above Watana Dam is, I
20 think, of particular importance, primarily because it
21 doesn't have a flood spillway, and I think that is a
22 critical issue for the Tennessee Valley.

23 The Fish and Wildlife Service was
24 created in 1940. It actually existed in previous
25 agencies, but it became responsible then for

1 conservation of migratory fish and wildlife. So it
2 plays a role in the basin as well. It, along with
3 the Corps of Engineers, is responsible for the
4 wetlands as well as the Environmental Protection
5 Agency, and the Natural Resources Conservation
6 Service, which, of course, is the NRCS and was
7 created about the same time as TVA.

8 The NRCS is primarily the
9 informational and educational arm of the Department
10 of Agriculture, but it also now is responsible for
11 the incentive programs that provide for the full
12 federal monies to private landowners, operators as
13 you may wish to call them, and many of those
14 incentive programs are aimed at bringing lands into
15 the wetlands category and also in control of
16 non-point sources of pollution.

17 The EPA is the Water Quality
18 Regulation and Endangered Species Act and also
19 wetlands. There's four agencies that have
20 responsibilities for wetlands, and you have to deal
21 with all of those.

22 The lead agency is -- it's one of the
23 questions on my exams. The lead agency is the
24 Natural Resources Conservation Service, believe it or
25 not, in spite of thoughts to the contrary.

1 I thought some about the policies of
2 the different types of land uses in the basin, and
3 there are no particular order of significance to the
4 color, but just a reminder that all of these are
5 realms, if you want, of where we need to be concerned
6 about policies that govern the development of the
7 water resource.

8 Agriculture, forestry, health,
9 transport, human settlement, energy, and
10 environmental concerns all are mixed up with the
11 water resources, as you're well aware. I am not
12 telling you anything new on that. It's just a
13 reminder that the scale of the operations of the
14 administration of the water resources of the basin
15 are very, very wide, and there's a tremendous
16 responsibility.

17 Some questions. To what extent does
18 TVA interact and communicate with these agencies? I
19 don't know the answer to that, you do, and may be one
20 of the things that you may want to talk about at
21 greater length during the coming 24 hours or so.

22 In what ways does this communication
23 take place?

24 Is it satisfactory to the agency?

25 I am talking about the federal

1 agencies other than TVA. Is it a satisfactory to the
2 TVA?

3 Can it be satisfactory to both?

4 That's another one you might want to put in there.

5 How might that interaction be changed?

6 To what extent will off-watershed
7 communities demand domestic water from TVA widening
8 TVA's service area?

9 That's a water supply issue which
10 you're really going to have to take a major look at
11 and be prepared for it. I don't know if you're going
12 to be able to control it. Although, you might be
13 able to.

14 And the impact of climate change,
15 growing population, topics which I have already
16 talked about, and increasing urbanization, it seems
17 to me these are where the three critical issues come
18 together to challenge you for answers to these
19 questions, which I would hasten to say you cannot
20 answer absolutely, except to say that you have got to
21 provide a way to assure flexibility in the response
22 because the responses are going to be needed not all
23 at once and they are going to be variable depending
24 upon the nature of the challenge and perhaps the
25 timing of the challenge. All of those are going to

1 be important considerations.

2 I added this this morning because the
3 reports from Chattanooga and the Tennessee Valley
4 this morning on the weather channel and the national
5 and local news suggested to me -- it reminded me that
6 I had talked about this. I actually started an
7 article on this topic, and it's been sitting in the
8 back of my mind somewhere. Our whole approach to
9 stormwater management needs an overhaul. We're doing
10 it all wrong.

11 How is that for a challenge?

12 Infiltration is decreasing with
13 increase in urban sprawl. Soil and groundwater
14 reservoirs are being depleted. Flooding is
15 increasing.

16 Subsidence is another problem. I
17 don't know if that's much of a problem in the
18 Tennessee Valley, probably not, knowing about the
19 soils and about the level of water supply to the
20 Valley, but in other places in the country it is and
21 it's a major problem, particularly in the sunbelt, by
22 the way, where there is excessive sprawl coupled with
23 stormwater management as we have known it for the
24 past 50 years or so and it decreases the amount of
25 water getting into the soil and subsidence becomes a

1 major problem.

2 Last fall in October there were major
3 floods in Germany and throughout Western Europe, and
4 I remember a newscast where Peter Jennings made a
5 statement that the increased flooding was due in part
6 from increased urbanization on the watersheds. I
7 don't know where he got that information from. He's
8 not usually one to come up with hydrological
9 expressions of certitude, but that certainly was a
10 positive statement that he made.

11 I wrote to him and tried to get in
12 touch with him to find out where he got that
13 information from, but I was not able to get through
14 to him, but he's right, and I've heard that from some
15 other sources, hydrological sources, not that Peter
16 Jennings is not a good source, but I just didn't have
17 that one written down.

18 At any rate, that was another, for me,
19 nail in the coffin that the stormwater management
20 approach needs overhaul. We have been doing things
21 wrong.

22 This was about that same time that I
23 also visited Santiago, Chile, sorry about that, I
24 pushed the wrong button, and was there for a meeting
25 and stayed in a subdivision where there was some

1 typical stormwater drainage activity going on, but on
2 a closer look in some of this area there actually
3 were what they call rain gardens.

4 And rain gardens are being developed
5 very extensively in many communities now. It's a
6 development and an approach to stormwater management
7 which is catching hold very, very quickly.

8 And here's a closeup of what this area
9 looked like. From a distance it looks green. It's
10 cobblestone laid with turf so that the water gets
11 back into the soil, and it is very, very effective,
12 amazingly effective. We can't use it up in Syracuse
13 because we have got freezing conditions, but you
14 might be able to use it down here.

15 Some of that flooding that's taking
16 place today, this week, may well be due to
17 urbanization. And after all, the flood problems that
18 were set up originally that caused the creation, at
19 least in one dimension of the Tennessee Valley
20 infrastructure, the dams, flood control or a portion
21 of it was flooding, but there were floods downstream,
22 not floods on the watershed.

23 You're dealing now with floods on the
24 watershed, major flooding on the watershed. There
25 were floods on the watershed then too, but now they

1 are causing more damage.

2 Why? Because there are more people
3 there.

4 Why? Because they are living in more
5 concentrated areas, in more urban areas.

6 Even parking areas along the sides of
7 the street have got cobblestones and spaces in there
8 for water to seep in.

9 At a meeting I was at last week there
10 was -- I don't remember the name of the company, but
11 they were involved with putting in rain gardens for a
12 college somewhere where they had a great big patio
13 between two big dormitories, I mean, a huge concrete
14 patio, and they took out that entire patio and
15 designed a stormwater control system that would allow
16 the water to get back into the soil.

17 They had estimated by their models on
18 how much water would go back into the soil and so on,
19 and they were very pleased to see that it far
20 exceeded their expectations. It's a very exciting
21 type of an approach towards doing it. It sounds like
22 a little thing, but it may be extremely important,
23 particularly within the basin in terms of water
24 supplies and flood control, plus expenses in flood
25 losses for people.

1 There's all kinds of things. So I
2 added that slide last night because it suddenly
3 occurred to me in hearing about the floods that it
4 was potentially putting something in of value and a
5 direct relationship.

6 Let me also point out that I ran
7 across -- I didn't run across, I looked for this
8 article last week, water policies versus sustainable
9 development in a book called, Water for Sustainable
10 Development in the 21st Century by Biswas, Jellali,
11 and Stout, 1993.

12 And Major Husmett (phonetic) presented
13 a three-fold approach or the framework for a water
14 resources policy that might be a good type of
15 framework to consider as you proceed here. It talked
16 about the natural resources system, the human
17 activity system, and the water resource management
18 system.

19 All right. It's a nice way to
20 organize what you're thinking about. I tend to be
21 overorganized, and I will sit down with somebody that
22 makes a matrix out of this and say, well, what are
23 the agencies involved?

24 How can TVA be involved in each of
25 these?

1 How can they be involved in the
2 watershed initiatives, for example, the
3 organizations?

4 And so this becomes a fairly decent
5 framework perhaps for your consideration. You might
6 want to use it, adopt it. I think it's a very
7 current and appropriate approach to what you want to
8 get at.

9 Wade Husmett (phonetic), I first ran
10 into him in the first Western Resources Conference
11 held in Boulder, Colorado in 1957, all right, where
12 he and Arthur Moss presented the first computer model
13 of how to build a series of dams on a river in order
14 to meet certain demands. It was a very interesting
15 presentation, the first use of the computer.

16 You can turn the unit off, if you
17 would, Paul. Thanks. Those are the slides that I
18 wanted to present. I jotted down some notes also as
19 we were talking as preliminaries to start today, and
20 I can put any of these back up if you want them.

21 Climate change, I have been
22 maintaining that I am quite convinced that we're
23 going to have a major climate change. And the
24 climate change is going to manifest itself certainly
25 within our lifetimes in greater extremes. I

1 certainly hope we don't see a reversal of the flow of
2 North Atlantic and North Pacific oceans. If we do,
3 we're going to have major climate change, but before
4 that happens I don't think there's any question that
5 we're going to have greater extremes of drought and
6 precipitation, temperature extremes.

7 We are seeing that. I mean, if you
8 take a look at the record of extremes over the past
9 50 years or 100 years of records that we do have
10 available you'll find that the greatest temperatures
11 and the greatest rainfalls and greatest snowfalls of
12 the last -- the greatest results, for example,
13 occurred within the last five years, something like
14 that, and those are the types of things that you --
15 figures that you see.

16 And part of that, of course, is
17 natural because the longer time you wait the greater
18 extreme you're going to observe, but we're getting
19 greater extremes because we are in a period of
20 climate change, I don't think there's any question
21 about that.

22 And while eventually that will put us
23 into an ice age, I think we need to protect ourselves
24 initially on the greater extremes issue. The greater
25 extremes become important when we take a look at the

1 population shifts, the change in urbanization, the
2 increase the suburbanization, the change in relative
3 and perviousness of our watershed, and I think that's
4 something that we can do something about.

5 Let's see. Who asked about whether
6 we're having a crisis in surface water?

7 Kate?

8 FACILITATOR DAVE WAHUS: I believe
9 somebody did, yes.

10 DR. PETER BLACK: And, yeah, I think
11 we are having a crisis in water quality. We're
12 attacking a lot of that with non-point sources of
13 control. We're doing a fairly good job on our point
14 sources and have done that. Those were supposed to
15 be done by the beginning of the 1985 and '90 period.

16 We're pretty well set. Although, as
17 we get more and more demands for municipal waste
18 treatment plans, we're going to have to maintain
19 point-source control, but the non-point source
20 control is where our big problem is.

21 And actually, the National Water
22 Commission 35 years ago said that half of the cost of
23 cleaning up the water was due to urban runoff, and we
24 still really have not done a tremendously good job of
25 dealing with that. We do a lot with urban runoff,

1 but we have got a lot to go.

2 So it intrigued me the thought that --
3 the rain gardens. The idea of getting grass to grow
4 where we have pavement is indeed a grass roots
5 approach. So it's one that fits.

6 I think TVA would go a long way in
7 having one focus, it's not the only one, but one very
8 useful focus, I think, in learning something about
9 the rain gardens approach to stormwater management.
10 I think it's very possible in the future and a very
11 important future.

12 Any other questions that have to do
13 with partnerships?

14 So I will stop there and leave some
15 time for questions or discussion.

16 FACILITATOR DAVE WAHUS: Does anyone
17 have any questions?

18 Jimmy?

19 MR. JIMMY BARNETT: Dr. Black, our
20 city is not currently wrestling with the stormwater
21 regulations put out by TVA -- I mean, by EPA, sorry,
22 Kate. The money angle is a very serious problem in
23 our small city.

24 How effective do you think these
25 regulations are going to be?

1 DR. PETER BLACK: Pardon?

2 MR. JIMMY BARNETT: How effective do
3 you think these regulations are going to be that EPA
4 currently has?

5 DR. PETER BLACK: One nice thing about
6 the regulation is they can be done at the local
7 level. They don't have to be done at the state level
8 or the TVA level.

9 Am I correct in that?

10 MR. JIMMY BARNETT: That's correct.

11 DR. PETER BLACK: So I think one of
12 the nice things about the stormwater management
13 revision, developing rain gardens, is it is something
14 that can be done at the local level, grass roots
15 level, and people can take ownership in it in helping
16 improve water management.

17 I mean, if people could understand
18 that their urban sprawl contributes to this flood --
19 the basic cause of flooding is excess rainfall,
20 14 inches of rain produces problems, but there can be
21 improvements made to reduce the local flooding from
22 that stormwater management effort.

23 I'm not qualified as an engineer to
24 say what can be done. I can't sell my services for
25 that purpose. I am not a PD, but I know it can be

1 done. I know there are people who are out there
2 interested in doing that. I know at least one firm,
3 and I can find out which it was, that was doing this
4 operation.

5 MR. JIMMY BARNETT: Well, our city
6 being a small city, small town, about 9,500
7 population, something like that, they have a hard
8 time with all the competing interests for the funds
9 that they have available as funds.

10 They are right now wrestling with
11 that. They are wrestling with the wastewater system,
12 which we operate as a utility. Trying to get the
13 resources to do it, we have had to increase our rates
14 in that area and in the water area just for our water
15 distribution system.

16 We have real problems on getting
17 enough revenues in either by taxes or users fees or
18 everything else. It's going to be awful hard for the
19 Federal Government to come in and support small
20 cities like this with grants and things.

21 DR. PETER BLACK: That's true.

22 MR. JIMMY BARNETT: It's going to be
23 hard for the states, too. They are fighting the
24 battles themselves for revenues. The cities are
25 fighting it.

1 What I'm afraid of is if we try to get
2 too comprehensive from all of these things, let's do
3 something, first of all, that is -- I won't call it
4 affordable, but at least within their grasp of the
5 parties involved to get it done. If you saddle them
6 with too much, all they are going to do is go
7 bankrupt.

8 DR. PETER BLACK: What about making
9 use of local interests?

10 One of the major costs of local
11 flooding is the cost of cleanup and the cost of
12 damage repair. So one of the places you might look
13 to would be insurance companies to assist in the
14 planning or the control of local runoff because if it
15 would reduce their costs, and hopefully, reduce
16 premiums and be a savings to the local community.
17 There's some possibility there that -- I don't know
18 the magnitude of them, but that might be an approach
19 that would be innovative.

20 MR. JIMMY BARNETT: Good idea.

21 DR. PETER BLACK: Yes.

22 MR. ED WILLIAMS: Given TVA's national
23 role and the potential for being a national model in
24 all of these water quantity and water management
25 issues, what do you think the most important next few

1 steps is we can take to enhance that position and to
2 serve as a national model? What can we do? What
3 should we ought to be doing next and next?

4 DR. PETER BLACK: Priorities, you're
5 asking. I don't know. I think one of the things
6 that might be most useful would be the stormwater
7 issue because the local flooding issue is a major
8 one.

9 It's obviously on us now, but it may
10 have been a value beyond just taking care of the
11 floods, and that would be on getting the local people
12 involved as individuals, as groups, as communities,
13 as businesses, and that in itself might be of
14 tremendous value within the basin.

15 I don't know. I hesitate to use the
16 word rebuild because I don't know to what extent
17 there's been a loss of local interest and
18 involvement, but let's just say to build that up or
19 strengthen it because out of that grass roots
20 approach comes the strength, I think, that TVA can
21 put together a plan or a series of plans for
22 different communities that may have different
23 requirements anyhow for flood control and then be
24 able to work on some of the other issues as well,
25 because once that solidification of people and

1 organizations comes together, you should be able to
2 face other problems without -- outside the basin,
3 like demand for water supplies for cities outside the
4 area.

5 MR. ED WILLIAMS: Does anything else
6 strike you other than stormwater that might be our
7 next step beyond that?

8 DR. PETER BLACK: I suppose some
9 issues that deal with recreation, environmental
10 quality, land management in its entirety or as a
11 whole, not one program for the whole thing, but the
12 land management issues on local areas that deal with
13 particular crops, for example, or particular markets
14 or types of ownerships. That could include forest
15 ownerships as well.

16 Does that answer your question?

17 MR. ED WILLIAMS: Yes, sir.

18 FACILITATOR DAVE WAHUS: Stephen.

19 DR. PETER BLACK: Okay.

20 DR. STEPHEN SMITH: I may be a little
21 bit out to lunch on this one because I am not an
22 expert in hydrology and how water moves and
23 everything else like that, but you're visiting the
24 valley at a fairly unusual time. Obviously, the rain
25 we're getting and the flooding and the things that

1 are happening doesn't happen on a regular basis.

2 Actually, it tends to be more of a
3 sense, at least what we have dealt with on this
4 Council, is some of the drought and some of the
5 problems we have had, you know, the competing
6 interests of water for power generation, navigation,
7 recreation, and all of these other kind of things.

8 I'm just curious. I'm intrigued by
9 this water garden concept because I share your
10 concern with runoff and other things, urbanization,
11 and the more we sort of lay concrete pavement
12 everywhere that it does change a lot of the sort of
13 natural movement of the water and can create
14 unforeseen problems.

15 There is, and I may be wrong on this,
16 but it seems like there are competing interests
17 because to some degree returning water into the river
18 system or getting water into the river system, for
19 some interests you want to see more water when we're
20 having droughts or for a power company who is wanting
21 to see more water for, you know, power production,
22 and I am just wandering, is it your sense that if the
23 water goes into these gardens that it's going to --
24 you know, I mean, how is that going to impact these
25 competing interests of wanting water in the

1 reservoirs for recreation, wanting water in the
2 reservoirs for hydropower production, which, I guess
3 in a simplistic way, and I may be wrong on this, that
4 if it runs off faster because you have got everything
5 paved you're getting it into the river system faster,
6 and that -- you know, again, when you have intense
7 rainfall that's a problem, but when you tend to have
8 less rainfall, you know, some people may sort of in a
9 weird way see that as a positive thing.

10 And I'm just curious, like I say,
11 because you have these floods on occasion, but what
12 we've dealt with really over the past, you know,
13 multiple years is less of the flooding and more of
14 the sense that we don't have enough water in the
15 water system. So TVA has cut back on hydroproduction
16 and we've got certain interest groups that use
17 recreation that are raising hell about not having
18 enough water in there and maybe -- you know, so I am
19 trying to figure that out. You're on a day here
20 when --

21 DR. PETER BLACK: In the western
22 states they have a priority system for their water
23 uses, and their highest and best use officially is
24 domestic water, municipal, industrial, and then
25 hydropower, hydropower sometimes combined with

1 industrial. Recreation is at the bottom of the list.

2 The recreation water use in recent
3 years has been tied to endangered species, and so
4 that provides a challenge to ensure that -- it gives
5 the recreation interests a very powerful tool that
6 the courts will sanction and make recreational
7 demands on water resources move up in this scale in
8 the court even if there's not a preference listing
9 within the state that you're involved in.

10 There's another thought that occurred
11 to me; and that is -- let me bring it back. There's
12 two other things. One of them was that you have
13 plenty of storage. So as far as water supply is
14 concerned, you know, if you have drought over a
15 couple of years you have got enough water to meet it,
16 but not to do that and hydropower because you have to
17 release it.

18 Furthermore, drought is going to occur
19 and it's going to be hot. It's going to require more
20 air conditioning which is going to require more
21 power. So there's got to be some sort of management
22 plans set up or some guidelines perhaps in terms of
23 that that go along with drought and scarce water
24 supplies that meet and say, okay, we're going to have
25 to maybe have some regulations that say the

1 thermostats are going to have to be set 2 degrees
2 higher or something like that.

3 The other thing that occurred to me --
4 and I don't know how to deal with that. It's
5 something -- you need to tie those together because
6 as the hydropower demands and increase and the
7 drought increases, I don't think there's any question
8 about that.

9 The other thing that is possible that
10 might come out of the stormwater issue and something
11 that the TVA might want to set up a partnership to do
12 would be to initiate a study.

13 I am quite sure that you can get a
14 group together within TVA or a consulting group to
15 study what the impacts of urbanization at different
16 places on the watershed are on the stormwater runoff
17 pattern.

18 This might be a very important thing
19 to do because if the urbanization continues
20 uncontrolled, the impacts may be far worse, I don't
21 know that, but it would be helpful to know that if
22 this is the watershed and here's the stream and we
23 have got this area over here, which was threatened
24 with urbanization, and we can point to that area
25 hydrologically and say it would be much better for

1 the hydrological health of this watershed and future
2 water use and demands if we develop that area over
3 there instead of this one over here or we scattered
4 that development over a wider area or interspersed it
5 with green spaces, those might be important
6 considerations.

7 I don't know to what extent that type
8 of planning has been done on the basin. It may have
9 been done within planning units in communities within
10 cities.

11 DR. KATE JACKSON: I would doubt it.
12 I mean, the Tennessee Valley is only now beginning to
13 initiate zoning of any kind. So, you know, we have
14 not had that kind of contentious land use issues that
15 would lead to some of these discussions.

16 Although, we now have a program that
17 we are working with the State of Tennessee on the
18 growth readiness initiative, which that's a really
19 good idea and I wrote myself a note that maybe we
20 could add that as a component in that analysis and do
21 some R&D on that.

22 DR. PETER BLACK: It might be a good
23 justification of focus for starting that process,
24 which I think that would be very, very important to
25 the ultimate health of the basin. Ideally it would

1 be done on any watershed, wherever there is an
2 organization.

3 DR. STEPHEN SMITH: And I would assume
4 with these rain gardens basically what you're doing
5 is you're slowing down the rate of return to the
6 river as opposed to --

7 DR. PETER BLACK: That's right.

8 DR. STEPHEN SMITH: So you would hope
9 to get a more sustained as opposed a sort of a shock
10 runoff that happens very rapidly and you would --

11 DR. PETER BLACK: Correct. It
12 wouldn't restore hydrology of the watershed
13 completely when there was no development there, but
14 it would help get it back and certainly would
15 preclude any further degradation of any flooding
16 situation.

17 DR. KATE JACKSON: And I think it
18 would also allow --

19 DR. PETER BLACK: Couldn't tell where
20 the voice was coming from.

21 DR. KATE JACKSON: -- a much more
22 rapid recovery of groundwater resources after the
23 drought.

24 MR. BRUCE SHUPP: We have time for one
25 more quick question.

1 MS. SUSAN HUTSON: I just want to
2 follow up on that.

3 FACILITATOR DAVE WAHUS: Would you
4 introduce yourself?

5 MS. SUSAN HUTSON: Susan Hutson, U.S.
6 Geological Survey. I just wanted to follow up on
7 Steve's question. And Steve, you came in late, and
8 I'm not sure who you represent or where you're from.

9 DR. STEPHEN SMITH: I'm the executive
10 director of the Southern Alliance for Clean Energy.

11 MS. SUSAN HUTSON: Thank you. When
12 you put in rain gardens or some kind of alternative,
13 what you're doing in this sense is you're allowing
14 the water to infiltrate into the groundwater. And
15 what you're doing then is putting that water into the
16 storage. During drought the streams are maintained
17 from the groundwater that's in storage, so that's
18 what you're accomplishing with that.

19 And Bill, you might be able to back me
20 up on this. They looked at doing something very
21 similar in Chattanooga when they were faced with
22 putting in a new wastewater treatment facility. What
23 they had to do there was account for not only the
24 increased sewage but also the increased stormwater,
25 and they looked at those alternatives, paving public

1 parking lots with the porous asphalt. And, of
2 course, they found out because of soil conditions
3 they weren't able to implement that. So that's part
4 of it.

5 Does that provide you --

6 DR. STEPHEN SMITH: That helps. I
7 know that on the edge of the Cumberland Plateau
8 there's been a lot of concern about some of the
9 forestry practices where you have taken -- they have
10 come up pine monoculture which may not have the same
11 absorption rate as some of the other --

12 MS. SUSAN HUTSON: Correct.

13 DR. STEPHEN SMITH: -- indigenous
14 trees that were there before, and there have been
15 periods of intense flooding coming off of the
16 plateau. There's been some concern, which is sort
17 of -- again, it's a development issue, it's not
18 urbanization, but it's land management, and, you
19 know, I'm -- I mean, you can see it. You don't have
20 to be an expert in this.

21 When it rains, you know, this stuff
22 sweeps down the road and, you know, it's just
23 immediately deposited, and there's no real thought
24 about how to sort of --

25 DR. PETER BLACK: That's an example of

1 why it would be a good idea to have a professional
2 study done of what that type of -- the different
3 types of management might be on different geographic
4 areas within the basin because they would have
5 different reactions and require -- and that provides
6 you with the basis of coming up with scientifically
7 based regulations which are the only things that
8 would stand up in court ultimately and might be a
9 good idea.

10 Thank you very much.

11 MR. BRUCE SHUPP: Thank you,
12 Dr. Black. Appreciate it. Before we take our
13 15-minute break, we had several more members come in.

14 Julie, would you introduce yourself to
15 the guests, please?

16 MS. JULIE HARDIN: My name is Julie
17 Hardin, and I represent the Foot Hills Land
18 Conservancy. I have been on this Council now for --
19 this is my third year, I believe, and I am glad to be
20 here. I'm sorry I am late.

21 MR. BRUCE SHUPP: Michele.

22 MS. MICHELE MYERS: I'm Michele Myers.
23 I am with the Kentucky and the Tennessee Marina
24 Association.

25 MR. BRUCE SHUPP: Greer.

1 MR. GREER TIDWELL: I'm Greer Tidwell
2 with the Bridgestone/Firestone Tire Company as their
3 environmental director and recommended to serve on
4 here by the Tennessee Conservation League.

5 MR. BRUCE SHUPP: Thank you. Take 15
6 and get back promptly at about five minutes after
7 10:00.

8 (Brief recess.)

9 MR. BRUCE SHUPP: Take your seat,
10 please. This next segment of the program goes from
11 now until noon until we break for lunch, and it
12 addresses the regional viewpoints on the water
13 quantity management and water supply issues.

14 We're going to deviate from the way
15 it's shown on your printed agenda. Instead of going
16 with a 20-minute presentation with 10 minutes of
17 questions and answers each, we're going to go 20
18 minutes, 20 minutes, 20 minutes, 20 minutes, and then
19 we will have 40 minutes for question and answers to
20 the panel. I think it will be more efficient that
21 way and we won't have anybody run out of time and it
22 will let you take notes through all of the
23 presentations.

24 Our first presenter is Susan Hutson
25 who is a hydrologist with the U.S. Geological Survey.

1 Currently Susan is working with the USGS National
2 Water Use Information Program to produce an estimate
3 of water use throughout the United States for 2000,
4 and also is the regional water use specialist for the
5 southeast region.

6 Susan got her BS from the University
7 of Tennessee at Knoxville and her MS from the
8 University of Memphis.

9 Susan Hutson.

10 MS. SUSAN HUTSON: Thank you. I
11 understand there's some adjustment to the mics first
12 and so I will begin to talk.

13 DR. PAUL TEAGUE: Excuse me. Can I
14 ask a question?

15 MS. SUSAN HUTSON: Yes.

16 DR. PAUL TEAGUE: Before you start
17 talking, I like both places you went to school,
18 there's nothing wrong with that.

19 Would you define hydrology for me?

20 MS. SUSAN HUTSON: Yes. Hydrology is
21 the study of the movement of water. So when you're
22 looking at the hydrology, you're looking at a water
23 in the streams and water underneath the ground in the
24 aquifers.

25 And my particular specialty is water

1 use, water demands where I am looking at what -- how
2 much water is removed from the system and how does
3 that removal of the water impact the water
4 availability.

5 So the water use studies that I have
6 conducted have integrated the water demand with
7 surface waters, such as in the Duck River, and water
8 demand with the groundwater. I did a study in Union
9 County, Mississippi integrating those two aspects.
10 So it really pulls all of the systems together.

11 Does that help?

12 DR. PAUL TEAGUE: Yes, ma'am. Thank
13 you.

14 MS. SUSAN HUTSON: Okay. Because I
15 was going to talk about more of these aspects in my
16 talk, and I can talk about them now or I can just
17 wait.

18 Paul, how do we start the -- okay.

19 So the U.S. Geological Survey, in
20 cooperation with Tennessee, conducted an
21 investigation to collect and analyze water
22 withdrawals and return flows for the year 2000 and
23 project water demand to the year 2030 for the purpose
24 of determining consumptive use in the watershed.

25 And try to answer that question, how

1 much water do we need now and how much more will --
2 will be lost in the future?

3 Consumptive use is that part of the
4 water withdrawal, the part that's removed from the
5 system, that is lost through evaporation,
6 transpiration, incorporation into crops, consumption
7 by humans and livestock and other removal of the
8 water from the immediate environment for immediate
9 reuse, for example, a water transfer.

10 While understanding how water use, of
11 which consumptive use is a component, varies
12 categorically, spacially, and temporally is important
13 to any water supply analysis. The data from the
14 study that we conducted jointly was used as input to
15 the reservoir management models that TVA used for the
16 ROS study to evaluate alternative water supply
17 scenarios in the process of determining future
18 reservoir management practices.

19 The study tract water use from its
20 source as represented by the stream flow diagram and
21 groundwater flow diagram to its distribution as
22 represented by the pipes to its use as represented by
23 the tanks here, thermoelectric, public supply,
24 industry public supply, and irrigation, to its
25 discharge through our falls and its evaporation or

1 consumptive use.

2 For the most part the data that we
3 collected, the water withdrawal data and return flow
4 data, are site specific. The water withdrawal data
5 for 2000 were obtained with the cooperation of the
6 states within the Tennessee watershed or from
7 individual facility surveys.

8 The municipal waste water and
9 industrial discharge data, that return flow data,
10 were essentially derived from EPA's NPDES program and
11 their PCS files. And we feel that the data that we
12 collected represent the best possible data available.

13 This is a map of the TVA watershed.
14 The data that we collected, essentially we had either
15 a latitude/longitude coordinate or the outfall --
16 intake/outfall site or a river mile associated with
17 it or at least a river reach, and that allowed us to
18 take that withdrawal and return flow information and
19 assign to it a county and state, an eight-digit
20 hydrologic unit code, and an eight-digit hydrologic
21 unit is in a sense a small watershed, or one of 30
22 reservoir catchment areas.

23 And the reservoir catchment area is a
24 spacial unit that we came up with for this study to
25 account for water use transaction withdrawals and

1 return flows, and therefore, allowed us to describe
2 one aspect of the functional hydrology of the
3 watershed. The watershed catchment areas are similar
4 to the special units that were used in the weekly
5 scheduling model. So there was some correspondence
6 to the two studies.

7 So, for example, when we're talking
8 about reservoir catchment areas, if you look in
9 the -- I did the same thing Peter did. We're
10 learning this. Okay.

11 In the upper part of the watershed
12 here we have a series of reservoir catchment areas,
13 South Holston, Fort Patrick, Henry, Boone, Watauga,
14 and Cherokee. Together these reservoir catchment
15 areas comprised another unit that we used for the
16 analysis of consumptive use, which is the water use
17 tabulation area. So that consumptive use was
18 calculated at the juncture of the water use
19 tabulation areas for the purposes of the study.

20 Now, the boundary of the -- the
21 boundary of the Tennessee River watershed, which is
22 this area right here, is coincidence with the
23 Tennessee water resources region. The water
24 resources regions are organizing -- are ways to
25 organize information about the watersheds across the

1 United States.

2 The Tennessee River is the fifth
3 largest river in the United States. And in 1995 the
4 data show -- the water use state from the USGS showed
5 that the Tennessee River watershed ranged fourth in
6 power production and accounts for 8 percent of the
7 power produced in the nation. In 1995 the Tennessee
8 River watershed was the most intensively used
9 watershed in the United States measured as a function
10 of area.

11 In 1995 the Tennessee River watershed
12 used 244,000 gallons per day per square mile, higher
13 than the next water resources region, which was
14 California, which used 227,000 gallons per day per
15 square mile.

16 What's interesting about this
17 comparison, if you use California as an example, in
18 contrast, only 3 percent of the water -- without even
19 touching it, it just jumps all over the place.

20 Peter, I sympathize with you.

21 Looking at the watershed again here, 2
22 percent of the water in the Tennessee River shed was
23 consumptively used compared to California where 67
24 percent of the water was not available for immediate
25 reuse.

1 Now, the explanation for this is that
2 in the Tennessee River watershed, our primary water
3 use is thermoelectric. Most of the water that is --
4 that is withdrawn for thermoelectric is returned to
5 the river system, and it's returned to the river
6 system with very manageable impacts on the water
7 quality.

8 Therefore, what does this mean?

9 What this means is that the Tennessee
10 River watershed has a very high reuse potential.

11 Okay. So in the year 2000, sort of
12 the big result of our study here, the Tennessee
13 watershed withdrew about 12 billion gallons of water
14 per day.

15 Now, this slide compares the relative
16 withdrawals by category of users. And again, we're
17 talking thermoelectric industry, public supply, and
18 irrigation with the consumptive use. So looking at
19 this graph we see that water withdrawals for
20 thermoelectric were about eight times larger than the
21 water withdrawals for industry. Public supply was a
22 little bit more than half of the industrial
23 withdrawals and irrigation withdrawals were about a
24 tenth of the public supply withdrawals.

25 Now, let's look at consumptive use.

1 If you look at consumptive use, for irrigation the
2 consumptive use was about twice that of
3 thermoelectric power. And I don't think you can tell
4 the comparison of the slices that well in that slide.
5 Public supply and industrial consumptive use were
6 nearly the same, and the two of those accounted for
7 about 84 percent of the water lost in the Tennessee
8 River watershed. And again, we're only talking about
9 3 percent of the water loss. And the consumptive use
10 for public supply and industry together are and 18
11 times greater than that for thermoelectric power.

12 Now, another aspect of looking at
13 water use in the watershed and its impact on the
14 hydrology is to also look at the impact of the water
15 on the economy's of the local communities. So we did
16 some further analysis and looked at some economic
17 data sets and found an interesting relationship, that
18 there was high economic return from the water
19 resource used by industry.

20 We also did this comparison for
21 thermoelectric power, but I am not going to address
22 that in this presentation.

23 Industries that depend on large
24 amounts of water are industries that provide
25 relatively high earnings and are important to the

1 economic prosperity of local communities. What we
2 found, if we looked at the chemical, paper, and
3 primary industries they accounted for 75 percent of
4 the water withdrawals. Most of that water was used
5 for cooling and process water.

6 We took those water withdrawals and we
7 compared them to what we had at that time, which was
8 the most recent set of economic data. We looked at
9 the average earnings for the chemical industry. The
10 average earnings for the chemical industry were about
11 \$56,000 per worker, for the paper industry about
12 \$47,000 per worker, and for the watershed the average
13 worker's earnings were about \$37,000. So, again, you
14 have high economic return.

15 Another way to look at -- to further
16 look at this economic comparison is if you look at
17 the five counties where the chemical and the paper
18 industries are active, those count -- those
19 industries generated about a billion dollars in
20 earnings.

21 And if you look at it the way
22 economists do in terms of multiplier effects, those
23 earnings are spent and they are spent again. The
24 impact in those counties was somewhere between 2 and
25 2.5 billion dollars in revenue.

1 Another way to look at that same
2 picture is to say, look at those five counties,
3 remove those industries, and what you have instead is
4 a decrease in earnings. And the consequence
5 multiplier effect of 1 -- 2 -- \$1.2 billion.

6 So let's look at the results of this
7 study. How much water is needed now and how much
8 more will be lost in -- by 2030?

9 Consumptive loss was tracked, as we
10 mentioned earlier, from the headwaters of the river
11 system to Kentucky Dam, noting water transfers to the
12 Tom Bigbee and through the Barkley Canal for
13 hydroelectric power and Tom Bigbee for navigation,
14 noting them but not adding them to the consumptive
15 loss, because what we're primarily interested in when
16 we're talking about the consumptive loss are the
17 offstream use of water from the withdrawals, not the
18 water transfers.

19 We, again, divide that watershed into
20 the water use tabulation areas, which are marked by
21 dams down the stream here. We can graphically
22 compare the 2020 and 2030 consumptive losses.

23 Now, for the year 2000 the total
24 cumulative consumptive loss in the watershed was 649
25 million gallons per day, which is about the

1 equivalent of what our public supply withdrawals are.

2 2030, in 2030 consumptive use --
3 cumulative consumptive use is projected to increase
4 to about 980 million gallons per day or 7 percent of
5 the 13 -- nearly 410 billion gallons per day. In the
6 year 2000 consumptive loss was about 5 percent of the
7 total withdrawals.

8 So just to summarize by water use
9 tabulation area, and again, these are marked by major
10 dams. At Fort Loudon, Watts Bar, Chickamauga,
11 Nickajack, Guntersville, Wheeler, Wilson, Pickwick,
12 and Kentucky you can compare the percent change
13 between the year 2000 and 2030. It ranges from
14 38 percent in Fort Loudon to 56 percent at Nickajack.
15 And, of course, basin wide a 51 percent -- although
16 that indicates 61 -- a 51 percent increase in
17 consumptive use.

18 Okay. If you go back to the reservoir
19 catchment areas, the one -- the spacial units that
20 are similar to the weekly scheduling model, what we
21 see is that in terms of percent increase between
22 2020-30, Chatuge had the largest increase of
23 122 percent. However, 122 percent of a small number
24 is still a small number. So the largest volume
25 increase actually occurs in Wheeler, according to our

1 projections.

2 Let's look at the trend data. The
3 USGS has been collecting water use data since 1950 at
4 five-year intervals. The data we're using in this
5 comparison are 65 through the year 2000, and what we
6 see, indeed, is that the top line here is population.
7 The pop -- the top line is population. We're showing
8 a continuing increase in population in the watershed.

9 The light blue line is total water
10 withdrawals, the purple line is surface water
11 withdrawals, and then the gray are the groundwater
12 withdrawals. Surface water dominates in the
13 watershed. There's 98 percent of the water that's
14 pretty much used at all times.

15 What we see in the trend then, in
16 total and surface water withdrawals, is that water
17 use increases from 1965 through about 1980, decreases
18 from 1980 through 1985, remains relatively steady
19 from 1985 through 1995, and increases from '95
20 through the year 2000 about 22 percent.

21 And I have just put together some
22 preliminary data sets for the United States, and this
23 is a little bit counter to that trend in the United
24 States. Most of the United States is showing pretty
25 steady water use between '95 and 2000. In our

1 watershed, we're showing an increase of about
2 22 percent. So what we have here is -- what we have
3 done here is just simply for the year 2030 we haven't
4 separated surface water, groundwater, we have just
5 looked at that as a total.

6 Now, what about the water withdrawal
7 trends by category. Well, you can see the purple bar
8 is, again, thermoelectric, industry is the gray, and
9 public supply is the blue. Irrigation was too small
10 to show on the chart.

11 So the water withdrawals -- the water
12 use in the watershed are really driven by the
13 thermoelectric withdrawals, and that pretty much
14 controls the trend. And what we're looking at here
15 in industry, we are also seeing that same pattern of
16 increasing withdrawals and then declining withdrawals
17 for industry.

18 I think what we're proposing as an
19 explanation for that change there is in 1978 the
20 Clean Water Act came into being, and at that time
21 that made it very expensive for industries to
22 discharge water. And so over the years new
23 technologies have been implemented that require less
24 water, plant efficiencies have been improved, water
25 recycling has increased. There were also changes in

1 laws and regulations to reduce those discharged
2 quantities.

3 And so I think that by now, the year
4 2000, most of those changes have been implemented in
5 industry. So that when we're looking at 2000 here,
6 it's a small increase, but I think what we are
7 generally witnessing is an increase in industrial
8 water use.

9 So if you look at the results by
10 sector as a percentage of total water withdrawal, if
11 you look at thermoelectric, the percent of total
12 water withdrawals projected for 2030 for
13 thermoelectric really goes -- is reduced by
14 2 percent. It becomes 82 percent of the whole as
15 opposed to 84. Now, that sounds like a very small
16 amount, but it's a large quantity of water.

17 And the impact that that has is that
18 per capita withdrawals or per capita use in a sense
19 drop by the year 2030 about 13 percent, from about
20 2,700 gallons per person per day to about
21 2,300 gallons per person per day.

22 So with this information, and I think
23 this is part of your task here, we can begin to frame
24 and try to answer the intriguing and inevitable water
25 resources and reservoir operation question. Can the

1 Tennessee River continue to meet the increasing and
2 competing demands for water to support instream and
3 offstream needs for short and long-term?

4 Thank you.

5 MR. BRUCE SHUPP: Thank you, Susan.
6 Remember, we're holding questions until the fourth
7 panel member speaks.

8 The next speaker is Ben Rohrbach.
9 He's a hydraulic engineer with the Corps of Engineers
10 in Nashville. Ben's experience has been in hydraulic
11 studies and navigation modeling, including the
12 Kentucky lock addition, which is under construction
13 right now, as well as the Chickamauga lock
14 replacement, which has been recently authorized by
15 Congress.

16 Ben has been involved in regional
17 water supply issues primarily through the preliminary
18 engineering studies the Corps has conducted for
19 Cumberland, Wayne, Lewis, Lawrence, and Giles
20 Counties, Tennessee. Ben's a graduate from Tennessee
21 Tech University in civil engineering.

22 Ben.

23 MR. BEN ROHRBACH: Thank you. Can
24 y'all hear me all right? I may be a little louder
25 than Susan at times. We'll see. I don't know.

1 Okay. I hope that the presentation
2 today fits in with the objectives of the conference,
3 but what I would like to talk to you about today is
4 how the Corps addresses the need of municipalities
5 for water supply and requests that we get for
6 withdrawals from our reservoirs and how we assess the
7 system impacts of those withdrawals.

8 I would like to make the initial point
9 that the primary responsibility for water supply
10 rests with the state and local governments. The
11 Corps, in particular, has not typically been involved
12 in water supplies of business, but we do have several
13 programs that allow us to assist the local
14 communities in their efforts to secure safe water
15 supply, programs like the planning assistants.

16 The states under which programs we
17 conducted those water supply studies for was Giles
18 County and Cumberland County, among others, but the
19 focus of this presentation is going to be on our
20 authority to reallocate storage from our reservoirs
21 for water supply use by municipal and industrial
22 users and the assessment of the system impacts of
23 those withdrawals on water supply.

24 I am not the technical point of
25 contact for water supply issues with the Nashville

1 district. That would be Bill Barron or Parvathi
2 Gaddipati, and their numbers are on the screen there.
3 If anyone has any specific questions that I can't
4 answer today, I will be referring those to Mr. Bill
5 Barron. He welcomes all inquiries at the office. He
6 told me to tell all of you to call him.

7 Okay. Let's see. I don't think I
8 have to -- that one clicked. Numerous laws have been
9 enacted over the decades related to the federal
10 involvement and water supply from a -- from a United
11 States Army Corps of Engineers' perspective.

12 The one that we're most concerned with
13 today is Public Law 85-500, specifically it's simply
14 authorizing the Corps to reallocate a portion of
15 existing reservoir storage for water supply, which we
16 never -- we never had that authorization prior to
17 1958. And also, it authorizes us to assess the
18 impact of that water supply withdrawal on our system
19 and to levy any fees as necessary to charge people
20 for the use of that water, and that is a very
21 sensitive issue these days.

22 So a simple definition of reallocation
23 of storage, I won't read that for you, but, for
24 example, if a municipality approaches the Corps with
25 an application for water supply withdrawal of any

1 amount really we have got to -- we have to reassign
2 the value that they require from a different purpose.

3 You know, all of our reservoirs, and
4 you all are probably familiar with a lot of this, but
5 they have specific portions of the reservoir storages
6 are designated for uses for hydropower or flood
7 control or navigation, depending on where the
8 reservoir is. So we have got to -- we have got to
9 actually reassign a specific volume to water supply
10 and then assess what the impact of that is.

11 A coming slide -- the slide, in my
12 opinion, is a little out of order. This is also not
13 specifically my presentation, but there's a coming
14 slide which will explain originally authorized
15 purposes and new authorized purposes and how they
16 relate to reallocation studies.

17 So we have two primary types of
18 projects on the Cumberland River System, a lock and
19 dam project. Those are shaded in light blue. I
20 don't now how easy that is to distinguish for
21 you-all. Then we have dam and reservoir projects,
22 which are in the blue-hashed outline.

23 Water supply reallocation is currently
24 only being considered at our dam and reservoir
25 projects. Now, the primary reason for that is that

1 our lock and dam projects or run-of-the-river
2 projects do not have additional storage authorized
3 above that required for navigation.

4 There's some small additional amount
5 of storage for -- to make up for lost valley storage
6 due to the normal pool but -- and this may be a point
7 of contention among certain groups as well. From our
8 perspective, the lock and dam projects do not have
9 any additional storage that would be available for
10 water supply.

11 So if a municipality wished to
12 withdraw a significant amount of water from one of
13 the run-of-the-river projects, we would still conduct
14 a reallocation study. That would involve a
15 system-wide analysis and determination of how we
16 might modify our dam and reservoir projects to supply
17 or replace the water that was being withdrawn from
18 the lock and dam projects. I hope you understood
19 that.

20 Okay. So we have ten multipurpose
21 projects on the Cumberland River. They cover a
22 drainage area of 17,000 or 18,000 square miles, and
23 380 of the 640 miles of river -- of total river
24 length on the Cumberland are navigable due to our
25 lock and dam projects. We have an extensive

1 hydropower systems with 28 turbines and 914 megawatts
2 capacity.

3 So I think the slide discussing
4 operating unauthorized purposes recall the definition
5 of reallocation, which is the reassignment of storage
6 from one authorized purpose to another. We cannot do
7 anything without authorization from Congress. So
8 they specifically authorized us to consider this
9 reallocation for water supply.

10 Most Cumberland River projects were
11 constructed under one or all of the three original
12 authorized project purposes. Now, we do have a
13 couple of exceptions in the district, the J. Percy
14 Priest, which is right outside of Nashville, was
15 originally authorized by Congress for recreation --
16 to include a recreation component, and that's unique
17 in our Cumberland system.

18 The Martin's Fork project, which is in
19 the headwaters of the Cumberland above Lake
20 Cumberland and Wolfe Creek, was originally authorized
21 for water quality. And again, that's a very unique
22 situation.

23 I'm not familiar with the authorities
24 under which most of the Tennessee River projects were
25 authorized, but I would assume that they follow the

1 same typical pattern. They did -- they would not
2 have included these additional authorized project
3 purposes, which really seem to have gained more
4 importance in the last several decades versus how
5 people considered it, you know, in the '40s and '50s
6 when most of those were built.

7 Know that none of the projects were
8 ever originally authorized for water supply. We
9 actually do have a very water rich basin. Susan
10 touched on that. So most people might consider it
11 lucky to be in this situation that we're in,
12 particularly in areas out west, but that's a little
13 outside of my area of expertise also.

14 Okay. So I don't know if I noted, but
15 we are only considering reallocation from hydropower
16 authorization at this time. The flood control
17 component of our dams and reservoirs projects are
18 deemed too important to compromise with the
19 reallocation of water -- for water supply.

20 And with the amount of rain that we
21 have had recently and the flooding problems that the
22 whole region is experiencing sort of brings that
23 point home a little bit.

24 The total hydropower storage in our
25 system is 3.3 million acre feet. So the 1958 public

1 law authorized us to reallocate up to 7 percent of
2 that total hydropower storage toward water supply.
3 And on a project specific basis a lock -- a dam and
4 reservoir project specific basis we can reallocate
5 15 percent of that project's hydropower storage up to
6 50,000 acre feet, whichever is smaller.

7 It's important to note that the
8 storage computations that are used in this
9 reallocation study are based on the drought of record
10 at that project, and we do that to ensure that the
11 volume of water needed by that municipal or
12 industrial user will be available through any
13 condition that the reservoir might experience.

14 Granted, we have only got a historical
15 perspective of a limited number of years. So one
16 could argue that there's always a greater drought in
17 the future, and I think some of the discussion from
18 the Doctor from New York University, if I am correct,
19 he touched on the -- on his opinion that our weather
20 extremes and our fluctuations are going to be more
21 extreme in the years to come, and I would agree with
22 him on that, but we have no other basis upon which to
23 make that decision.

24 We are authorized as well to levy fees
25 for the water withdrawal, and currently total fees

1 that we're levying, they are \$18 million, and this
2 can be a one-time capital cost born by the applicant
3 that could be amortized up to 30 years.

4 We also require water withdrawal
5 applicants to pay for a portion of the operation and
6 maintenance of the reservoir from which they are
7 withdrawing water, and we calculate the percentage
8 for that maintenance cost that they will have to pay
9 based on the percentage of storage that they will be
10 using.

11 I'm way ahead of time. I knew mine
12 was going to be short.

13 Okay. So the one-time fee that I
14 talked about is determined by considering four
15 separate factors. We need to consider the loss of
16 benefits to the general public due to the hydropower
17 storage that is being used now for water supply, and
18 that would be like a quality-of-life issue, the
19 ability to heat water, to light traffic signals,
20 those types of considerations. I have no idea how
21 they put numbers on any of that, but they do.

22 We also consider the revenue that the
23 Federal Government loses from the sell of hydropower,
24 which we -- well, we don't lose money on it because
25 it's essentially -- except for the O&M it's cheap for

1 us to produce it, but if we were a private electric
2 utility we would be gaining much more revenue from
3 the sale of our hydropower than we do currently. I
4 think that might be the same on the Tennessee River.

5 We have also got to consider the
6 replacement costs for the benefits that are lost. We
7 also consider the original cost of the project or
8 those features of the project specifically related to
9 the impoundment of the storage. It would be the dam
10 structures, the property that had to be bought to
11 provide for the pool, those dollars are brought from
12 original projects dollars to present dollars and they
13 are also -- any are also measured out on a
14 percentage-of-storage-used basics. So the municipal
15 and industrial user will pay the highest of any of
16 those four above costs as their initial one-time fee
17 for putting in a water supply withdrawal unit.

18 We also ask them to pay again an
19 annual portion of the operation and maintenance, and
20 we do suggest that they put in -- that they set up a
21 sinking fund to pay for their portion of the
22 operation and maintenance or any repair and
23 replacement costs that might be necessary so that
24 they have that -- can have that in their budget for
25 years to come.

1 I think one main point to make, and I
2 have not been involved in these issues specifically,
3 Mr. Bill Barron, thank you, maybe I am not quite as
4 far ahead as I thought, has told me that the fees
5 that we collect are paid directly to the U.S.
6 Treasury.

7 There has been some concern over
8 whether the Nashville District was using this new
9 method of reallocating the storage and assigning
10 costs to users to increase our district budget, but
11 that's not happening. Everything goes back to the
12 U.S. Treasury, and in theory then the money is
13 returned to the taxpayers of the United States. Now,
14 how efficient a system of return that really is, you
15 know, we could speculate on that. I would say it's
16 not very efficient, but that's the idea, it goes back
17 to the taxpayers.

18 Okay. So some of these items that you
19 may be interested in are the current status of some
20 of our water supply reallocation studies and the
21 contracts that we have signed as a result of those
22 studies in several of the municipalities on our
23 projects.

24 J. Percy Priest reservoir, the one
25 that I mentioned was originally authorized -- one

1 component of it originally authorized for recreation
2 has had the water supply reallocation study approved
3 by our headquarters, and several of the contracts for
4 withdrawal have already been signed, I believe, with
5 the City of Murfreesboro, Tennessee, and Rutherford
6 County, Smyrna, Tennessee, which is a small town
7 north of Murfreesboro, and potentially a couple of
8 other smaller users along the upstream portions of
9 the Percy Priest reservoir.

10 The Center Hill Reservoir report is in
11 the Assistant Secretary of the Army office waiting
12 approval. Dale Hollow Reservoir report is at
13 headquarters being reviewed.

14 And the Laurel River Reservoir is
15 currently having some outstanding environmental
16 assessment issues that are holding up the study. I
17 won't go into detail on those. My understanding is
18 they are not really environmental assessment issues,
19 but several municipalities along that reservoir used
20 the public notice and comment period for the
21 environmental assessment as a means for introducing
22 some concerns that they had for other phases of the
23 study, some of the economic sides of that study.

24 So we expect the report to go up to
25 headquarters in May of 2003. Last, the Wolfe Creek

1 Reservoir report is in a draft form right now, and we
2 expect to submit that to our headquarters for review
3 in July of 2003 as well.

4 So that's a brief overview -- very
5 brief, I understand, overview of the Corps' approach
6 to water supply issues or water supply requests from
7 municipalities and the methods that we use to assess
8 those impacts on our reservoir system and levy those
9 fees.

10 And that's all I have.

11 MR. BRUCE SHUPP: Thank you. The next
12 speaker is Dick Tortoriello, who is a water resource
13 engineer in the Delaware River Basin. Dick's been
14 there since 1968 and in charge of the operation
15 branch since 1982.

16 He is presently responsible for
17 management of the Delaware River Basin reservoirs,
18 operation and modeling, drought planning liaison with
19 four basin states, Delaware, New Jersey, New York,
20 and Pennsylvania, and two hydroelectric generation
21 facilities.

22 He received his Bachelor's degree in
23 civil engineering from Newark College and Master's
24 degree in sanitary engineering from John Hopkin's and
25 a Ph.D in environmental engineering for Rennselaer

1 Institute of Technology.

2 Dick.

3 MR. DICK TORTORIELLO: Thank you.

4 It's my pleasure to be here. I don't know how far
5 away I should put this microphone. I guess that's
6 about right.

7 Can you hear me?

8 MR. BRUCE SHUPP: That's fine, Dick.

9 MR. DICK TORTORIELLO: This is the
10 first time I have been in Knoxville. I wish the sun
11 was out, but it looks like a very pleasant place to
12 live.

13 I have been asked to talk to the Board
14 and the Council about our water charging program that
15 we carry out at the Delaware River Basin Commission
16 for the Delaware River Basin. Gene Gibson has also
17 asked me to talk a very brief review about what the
18 commission is and what it does, and I will do that as
19 well.

20 The Delaware is 330 miles long
21 going -- and I will show you a map of that. There's
22 a variety of activities both in the Upper Delaware,
23 which is free flowing, and the estuary, which is --
24 I'm not sure how the pointer works on here, which is
25 portrayed there, and there's the Philadelphia.

1 As far as the basin, the yellow is the
2 outline of the basin running from New York State
3 through Pennsylvania, New Jersey, down into Delaware
4 and down into the Atlantic Ocean. Square miles,
5 13,500 square miles of drainage area and 216 streams
6 tributary to the Delaware. It covers four states, 42
7 counties, 838 municipalities, and two EPA regions.

8 By the way, I did have distributed
9 copies of this presentation for your perusal at a
10 later time, if you wish.

11 The basin supplies water to 17 million
12 water users, even though the population of the basin
13 is only 7 million. So one would wonder where these
14 other people come from. And the other people come
15 from the City of New York because about half of the
16 New York city water supply -- wrong way, sorry, half
17 of the New York City water supply comes through this
18 underground aqueduct down into New York City. They
19 are allowed to take 800 million gallons a day from
20 the Delaware Basin.

21 I talked about the length of the
22 river, 330 miles, running from Hancock, New York.
23 The east and west branches of the Delaware enter at
24 Hancock, go through -- downstream through Trenton,
25 Philadelphia, down again to the Atlantic Ocean, and

1 we're the longest undammed river east of the
2 Mississippi. That's mainstem dams. There are no
3 mainstem dams on the Delaware.

4 The commission was formed in -- let's
5 see how this works -- 1961. Here you have pictures
6 of the signing of our Compact, Federal-Interstate
7 Compact. We have five signatory parties with the
8 four states and also a representative of the Federal
9 Government, which at this time is a uniformed officer
10 of the Corps of Engineers. We're authorized by the
11 Interstate-Federal Compact. I believe it was the
12 first type of Compact of its kind for a commission.
13 Again, the Governors are the four commissioners.
14 They appoint -- Governors appoint alternates to
15 attend these meetings per year.

16 Our staff is 48 approximately,
17 including engineers, biologists, toxicologist,
18 planners. We have five branches. One is the
19 operations branch, which I head, and we're involved
20 in reservoir operation and drought management. Our
21 headquarters are in Trenton or just outside of
22 Trenton, New Jersey. Even though we're called the
23 Delaware River Basin Commission, we're not the
24 Delaware.

25 What do we do?

1 We manage -- we try to manage the
2 resources of the watershed basin, but this is not a
3 new concept but it's one that is difficult to
4 achieve, doing it on a watershed basis rather than a
5 political basis because it involves greater areas
6 depending on the size of the watershed.

7 We do regulate the water quality and
8 quantity, the water resources of the basin. We
9 direct the equitable distribution of water as far as
10 water withdrawals and use. We try to plan for the
11 best use of these water resources. We do have a
12 project review branch, which reviews applications for
13 water withdrawals as well as other types of projects
14 and facilities. We do coordinate and facilitate
15 studies. We have built a nice diversion project off
16 the Delaware River for the protection of one of the
17 smaller cities in New York State, and we also provide
18 education about water resources.

19 Our major initiatives, we're presently
20 involved with a Basin Wide Comprehensive Water
21 Resources Plan. It's been ongoing for about two
22 years, and it does involve management on a watershed
23 basis.

24 We also are involved with the Flow
25 Needs Strategy Study, which determines or tries to

1 determine the flow related issues basin wide as far
2 as what water is used for. We have a special
3 protection water quality area upstream of Trenton.
4 We have a groundwater withdrawal protected area
5 outside of Philadelphia. We also -- one of our large
6 programs is the toxic program for PCB's for
7 determining total maximum daily loads or TMDL's in
8 the Delaware estuary.

9 As you might imagine with probably up
10 to 80 industries and municipalities in the Delaware
11 estuary, this has become and is fairly controversial
12 only because it's going to cost money to implement
13 this program as it goes on.

14 And we're looking at watershed
15 management. One of the Pocono Creek pilot studies is
16 a study that could be utilized as a plan for other
17 watersheds for goal-based watershed management.

18 I think this is a true statement in my
19 mind, "A river is more than an amenity, it is a
20 treasure." Certainly in the Delaware, the upper
21 reaches especially, it's a beautiful stream, does
22 have many uses, obviously including recreation.

23 Three-quarters of the non-tidal river,
24 which is above Trenton, has been included in the
25 National Wild and Scenic River Systems.

1 One of the major factors in our water
2 supply situation in the Delaware basin is that New
3 York City owns three reservoirs that hold 271 billion
4 gallons of water. That probably, I assume, is small
5 compared to the reservoirs that you have here, but
6 for our basin it represents probably 60 to 70 percent
7 of the total water supply storage in the basin.
8 Water releases from these reservoirs are made to
9 maintain target flows downstream.

10 These are the three reservoir
11 locations on the upper basin. As I said, roughly
12 half of the water from these reservoirs goes to New
13 York City. A picture of the reservoirs.

14 I won't go into this in detail, I know
15 I am limited in time, but part of our
16 responsibilities of which I am more directly involved
17 is drought management coordination. In the past 20
18 years we have had approximately a drought warning
19 situation once every two years. We have had a
20 drought emergency situation at least twice in the
21 past 20 years. So we do manage water supply
22 reservoirs, as well as indirectly the New York City
23 water supply reservoirs to manage these droughts.
24 Our drought operating plant is based primarily on New
25 York City reservoir levels, and we have drought watch

1 warnings and emergency criteria.

2 I will skip through this because it --
3 these are the curves that are used. You do have them
4 in your brochure if you want to take another look.

5 Essentially the water storage in this
6 represents the drought of last year. When it goes
7 into this drought area down here or drought zone, we
8 are able to declare a drought emergency by the
9 commission. I will just continue.

10 Ben, I believe, talked about
11 reallocation of flood control. And this is the F. E.
12 Walter Reservoir on the Lehigh River on the Upper
13 Basin. This is totally a flood control reservoir.
14 At this point it's empty. If you look at the intake
15 tower, that's about 200 feet out of the water. We
16 are looking at modifying -- modifying that
17 reservoir for water supply, but it would become a
18 very costly project when and if we do it because of
19 the reallocation costs.

20 Just to give you an idea, during the
21 drought of last year we had all different state
22 drought declarations. We do work with the states to
23 manage the droughts.

24 Just to continue here. That's a
25 repeat. I am going in the right direction, I hope.

1 Okay. Our reservoirs are comprised,
2 oh, of about 300 billion gallons, including New York
3 City reservoirs which are in the Upper Basin. I am
4 going to get through this fast.

5 FACILITATOR DAVE WAHUS: You have ten
6 minutes yet, sir. You have plenty of time.

7 MR. DICK TORTORIELLO: Okay. I will
8 just slow down a little. The water supply reservoirs
9 that the Commission has paid for in part to build by
10 the Corps of Engineers are Beltzville Reservoir and
11 Blue Marsh Reservoir, both in the Upper Basin, and in
12 this case, both in Pennsylvania. One is on the
13 Lehigh River and one is on the Schuylkill River,
14 which is a tributary to the Delaware down in
15 Philadelphia.

16 Blue Marsh Reservoir, this is a
17 picture of it. It looks like it's about full. That
18 is the dam that you see down by the intake tower. An
19 industrial reservoir is not that much different.
20 These are primarily flood control reservoirs, but
21 because of our payment to the Corps and our contracts
22 with the Corps we have water supply capacities which
23 are used indirectly.

24 Our water supply in Beltzville is
25 28,000 acre feet. The flood control is about the

1 same, 27,000 acre feet. One aspect of these
2 reservoirs is that Federal Government owns 12,000
3 acre feet in this reservoir for water quality, in
4 other words, releases for water quality purposes
5 downstream.

6 Blue Marsh is used in a similar
7 manner. It is a smaller reservoir with only 8,000
8 acre feet of water supply storage and water quality
9 storage of 6,000 acre feet.

10 We have tended to use both the water
11 quality storage and the water supply storage as one
12 in making releases to control the salt intrusion down
13 in the estuary and for replacement of consumptive
14 uses. These reservoirs are used for recreation,
15 boating, fishing, swimming, but our important use is
16 releasing minimum flows.

17 There are conservation flows coming
18 out, especially maintaining by these releases an
19 equivalent of 3,000 CFS flow at Trenton, New Jersey
20 on the Delaware, which is right before the Delaware
21 becomes tidal. The main purpose of this is to repel
22 down in the Philadelphia area. Philadelphia gets
23 about half of its water from the Delaware River, and
24 New Jersey actually now gets a portion of its water
25 from the Delaware River and, in part, is to protect

1 that water supply.

2 We also provide releases for direct
3 water supply in some isolated cases from these two
4 reservoirs. And, of course, the Corps of Engineers
5 provides the flood control storage.

6 We have the authority -- the
7 commission was founded -- it has a Compact, which is
8 the Federal Initiative-Compact. We have wide-ranging
9 authorities by this Compact. We're permitted by two
10 sections of the Compact to build, operate, and charge
11 for water supply reservoirs, as well as other
12 facilities, but these are mainly the only two
13 facilities we have built or have had built.

14 Public hearings were held prior in --
15 prior to 1971 to get the public opinion of what the
16 water users would think about charges for these
17 reservoirs. The water charging program was
18 authorized by these two resolutions.

19 I think the major concern of the water
20 users at that time was that -- did the water users
21 that existed in 1961, the founding of the commission,
22 did they have to pay for water use?

23 And the answer that the commission
24 gave at that point in time was no, that they would be
25 grandfathered, those users would be grandfathered,

1 and they would not pay for the surface water
2 withdrawals that they made similar to the ones in
3 quantity that they made in 1961.

4 So our charging program, which was
5 instituted really in 1974, only applied to users that
6 came into being after 1961. The cost of these -- let
7 me talk a little bit more about that.

8 How many more minutes do I have left?

9 FACILITATOR DAVE WAHUS: Six minutes,
10 sir.

11 MR. DICK TORTORIELLO: Okay. It was
12 very interesting, and I'll get to the water supply
13 costs, but the charges that are being made by the
14 commission for repayment of these reservoirs are
15 primarily for the repayment of the reservoirs and --
16 but also for the administration of the water charging
17 program and also for the operation and maintenance
18 that we pay the Corps of Engineers for operating
19 these reservoirs.

20 We do own -- the commission does own
21 the water supply. We do not own the reservoirs that
22 the Corps of Engineers own. So it's an interesting
23 compilation of management, but we do make requests
24 for releases to the Corps of Engineers. Even though
25 we do own the water, there's never been a time that

1 they have refused our requests for water releases.

2 The other aspect of this was that our
3 program has actually -- water charging program has
4 increased as far as the amount of money we have
5 gotten, primarily because the water use in the basin
6 since 1974 has increased, especially for power plants
7 and co-generation power plants, but 70 or 75 percent
8 of our water charging money does come from utilities.

9 The other reason that the water
10 increases, as I said, there were new users coming in.
11 And also, some of the entitled users, which I have
12 and I will get to that, let me just give you an idea
13 of cost. Capital costs for Beltzville was \$6 million
14 in '71, \$16 million in Blue Marsh in 1981 when it was
15 completed.

16 The debt repayment, and I will go over
17 this in another slide, is about \$900,000 a year and
18 the operation of maintenance is over \$300,000 a year,
19 and that's just for the commission's part of the
20 operation and maintenance of water supply.

21 I've talked about this already.
22 Again, our water supply related functions, including
23 stream flow and solidity measure in the estuary, we
24 have done water use inventories, and we also do
25 extensive modeling in the reservoir operations for

1 the commission.

2 The entitlements, I guess I was ahead
3 of myself, but for example, the four or five major
4 oil company refineries on the Delaware River in the
5 Philadelphia area, four of those five companies have
6 been sold to other companies. At the time that these
7 companies were sold, the entitlements were rescinded
8 and a major amount of water charge money is
9 originating from these four companies compared to the
10 situation before they were sold. So we have
11 increased, and I will go over how much money we get
12 from our water charges.

13 Our system is self-reporting. We had
14 about 250 users. Most withdrawals are metered and
15 are based on pump hours. Consumptive use is
16 calculated or measured, and we assume 10 percent for
17 municipalities as far as consumptive use, they don't
18 measure it.

19 Entitled users' report annually and
20 pay for any amounts of exceeding entitlements and
21 users without entitlements report and pay quarterly,
22 well, it doesn't matter, 30 days after the end of the
23 quarter, and users calculate payments based on both
24 consumptive and non-consumptive use.

25 Our charges right now apply to either

1 surface water withdrawals. We have the two-tiered
2 charge for consumptive and non-consumptive use, but
3 there is no charges in New York State because New
4 York City controls the flow of Montague for the
5 minimum flow objective.

6 There's a sliding scale downstream in
7 Philadelphia, and no charge downstream of River Model
8 38, which is in the Delaware Bay, because the impact
9 on solidity is minor at that point down in the bay.

10 Our water charge rates, which I assume
11 you will be interested in, come out to be \$60 per
12 million gallons for consumptive use and 60 cents or
13 100th of the consumptive use charge for
14 non-consumptive users. These rates went up once
15 since 1974, and they are primarily based on a
16 repayment of the debt that you have with the Federal
17 Government and also for operation and maintenance.

18 Our revenue for the year 2002 totalled
19 \$2.3 million. And the different categories, you can
20 see, are municipals, industrial, electric utilities,
21 which are the majority of -- where the majority of
22 our revenues are, golf courses and ski areas.

23 Golf courses, especially in
24 Pennsylvania, which we assume use 90 percent
25 consumptive use, have especially increased in that

1 state. So even though the revenue is small, it's
2 gone fairly that dramatically over the years.

3 Our cost for our repayment operation
4 maintenance, total annual cost of 1.6, \$1.7 million a
5 year. The difference between 2.3 million and 1.7
6 million goes into an operating reserve and is used
7 for future capital expenditures that may come about.
8 Our bond or our debt is a 50-year debt starting in
9 1971 and 1981.

10 You can get a lot of information on
11 ours and other things on the commission on the net at
12 drbc.net. We have a very good web site, I believe,
13 and it would be very informative to you.

14 It's been my pleasure to talk to you.

15 Thank you.

16 MR. BRUCE SHUPP: Thank you very much.
17 Now we have from the private sector Bill L'Ecuyer,
18 who has been president and director of Tennessee
19 American Water Company since 1999, that's in
20 Chattanooga.

21 Before coming to Chattanooga Bill was
22 vice president and manager of Missouri American Water
23 Company in St. Joseph, Missouri that too served
24 200,000 people. He also worked in the private sector
25 in industry with GE and with Honeywell.

1 He has a Bachelor's degree in
2 economics and an MBA from Boston College, a law
3 degree from Oklahoma City University. He has been a
4 lieutenant with the U.S. Coastguard.

5 I thought it's also interesting that
6 he's been involved in some vary provocative and
7 interesting presentations. They include economic
8 growth in a community's vitality, Chattanooga
9 Manufacturer's Association was the audience for that.

10 What happens when the water stops with
11 Kentucky/Tennessee AWWA section meeting. TVA, the
12 Tennessee River and thirsty communities, which was
13 The Tennessee River Beauty, Bounty, and Balance
14 Conference sponsored by the Tennessee Department of
15 Environmental Conservation.

16 Bill.

17 MR. BILL L'ECUYER: Thank you very
18 much. After listening to a -- maybe I have done all
19 the controversial ones and maybe that's why I'm on
20 the program today.

21 What I wanted to say -- start off not
22 talking to do the presentation immediately, but ten
23 years ago I had experienced the flood of '93 in
24 Missouri. I think it's interesting when I listen to
25 what people are talking about here, and they are

1 talking about whether this was a 20-year flood or a
2 50-year flood, I haven't heard anybody say 100. When
3 we finally got through with the flood in St. Joseph,
4 Missouri, the hydrologists figured out that we had
5 experienced something above a 500-year flood.

6 So looking at Chattanooga yesterday
7 before I came up and being out at our plant, I
8 couldn't tell you how much I appreciate being about a
9 mile downstream from TVA's dam. So thank you very
10 much.

11 Thank you. It's a pleasure for me to
12 speak to the Regional Resource Stewardship Council on
13 behalf of my company on submissions of vital
14 importance to the Tennessee American Water Company.
15 Our company is the largest privately owned water
16 utility in Tennessee and was formed as a private
17 enterprise just after the Civil War.

18 And as you can probably tell by this
19 time, my accent is not from Chattanooga. What I
20 would like to tell people is that I have taken this
21 over from General Grant, who was the person who
22 started our company, and that was to bring water to
23 the occupying troops down in Chattanooga.

24 The source of our water is obviously
25 the Tennessee River. It flows for about 650 miles

1 throughout the Tennessee Valley. If you have been to
2 Chattanooga, you understand how important this river
3 is. It's a magnificent centerpiece of Chattanooga's
4 economic renaissance.

5 We draw an average of 40 million
6 gallons of water a day from the river for treatment
7 and delivery to more than a quarter of a million
8 people in and around Chattanooga. For that reason
9 alone, our company has obvious vested interests in
10 protecting and preserving the Tennessee River. It is
11 an interest to which we are deeply committed.

12 The river is key to TVA's electric
13 power operations, plus their 29 hydropowered dams on
14 the river system. It is the source of drinking water
15 for more than one million people. In that respect,
16 we consider TVA a partner with us and have since the
17 Agency's beginning some 70 years ago. Indeed, the
18 Agency is a valued customer of Tennessee American
19 purchasing nearly \$200,000 worth of water from us
20 just last year.

21 Of course, we could not pump that
22 water to the people that we serve without the
23 reliable electricity that TVA provides. The partners
24 also share larger common goals and interests, and for
25 the purposes of this presentation I would like to

1 mention three that define our relationship with TVA.

2 First, we appreciate TVA's role as a
3 protector and a steward of the river. The 2002
4 report on the status of the water quality in
5 Tennessee published by the Tennessee Department of
6 Environment and Conservation states that in the lower
7 Tennessee watershed 80 percent of the stream miles in
8 the system are now in excellent condition. That
9 finding reflects the expertise that TVA has invested
10 in its river management programs, one reason for its
11 establishment.

12 It also testifies to TVA's commitment
13 to the river's beneficial role in the valley. It
14 helps to ensure that the river's flow sustains
15 recreational and industrial usages but that -- and
16 that commit also protects -- excuse me. I thought I
17 got rid of this earlier. It also includes protection
18 of property during the heavy rains that we're
19 experiencing this week.

20 Tennessee American and other water
21 utilities rely heavily on TVA's stewardship, and we
22 aren't the only ones, so do thousands of people in
23 utility districts whose wells are recharged daily
24 through the vast underground water table that the
25 Tennessee River sustains. It is a tribute to TVA's

1 careful attention to its constituency that the Agency
2 has become a system-wide partner with Government's
3 and water utilities in the valley.

4 One of TVA's most crucial roles is
5 regulation of the flow of the Tennessee River, and
6 ideally that flow rate should be as consistent as
7 possible. We know that it is routine for river
8 levels to fluctuate over 24 hours for a variety of
9 different reasons, and that's understandable. That
10 fluctuation increases dramatically following a
11 sustained and heavy rainfall like we were having.

12 If you could put up the slide for me
13 now, Paul.

14 However, on the first slide you can
15 see from the April 9th to April 11th of this year we
16 had a swing in the river level of about 7 feet, and
17 then it leveled off before dropping back on April
18 14th, which is on slide two, which shows that that
19 level was fairly constant between April 24th and 25th
20 before going into a series of the up-and-down
21 fluctuations up and through May 1st of this year.

22 Even with the fluctuations we at
23 Tennessee American much prefer that TVA keep the
24 river at a higher level rather than a lower level.
25 When the river level is low, and that is for us at

1 our intake, 10 to 12 feet, and we are at a high
2 pumpage rate we run the risk of air entrapment into
3 our pumps and potential pump damage as a result.

4 This often occurs in the summer months
5 at times of high water demand that's high residential
6 water demand on our customer's part and in
7 conjunction with low levels in the river, and it
8 tends to create a vortex at our intake.

9 And if you will put up slide three,
10 which depicts river levels from August 2nd through
11 August 4th of last year. This illustrates the
12 perfect conditions for the creation of a vortex at
13 our intake.

14 If you could take that down now, Paul.
15 Thank you. An added problem is that low river -- low
16 river levels diminish the rate of dilution of
17 contaminant in the water. Higher levels, on the
18 other hand, are more desirable.

19 Locally they tend to reduce the inflow
20 into the river from South Chickamauga Creek, a
21 waterway we consider more of a contaminating entity,
22 and its water quality is poorer because of high
23 siltration and the presence of potential
24 bacteriological pathogens.

25 Without a relatively high river level

1 and flow, more water from the creek feeds into the
2 river requiring us to do a more extensive treatment
3 of the water, and in that sense, the raw water
4 quality is directly related to the flow of the river.

5 Tennessee American has an obvious role
6 to play in the stewardship of the river. We are a
7 water provider to the Chattanooga area. We are also
8 a protector of that vertical natural resource. We
9 monitor the river every day and run hundreds of tests
10 to determine not only the quality of the source of
11 the water but our treated product as well. We are
12 happy to share that -- the results of that testing
13 with TVA whenever necessary and invite the Agency to
14 do the same for us with any data that it collects.
15 Together, the combined data would be mutually
16 beneficial.

17 It is good business for us to maintain
18 the integrity of that waterway. When we integrate
19 good environmental practices, including watershed
20 surveillance and educational outreach to the people
21 that we serve and bring that into our business
22 operations, we promote the message that protecting
23 the Tennessee River means protecting Tennessee
24 American drinking water.

25 The second factor that determines our

1 relationship with TVA deals with the common purpose
2 of protecting the health of the people that we both
3 serve. Like other water utilities, Tennessee
4 American relies heavily upon TVA's stewardship of the
5 river and its system.

6 One of them, the Tennessee, is a
7 source of our livelihood. For that reason, we are
8 vitally concerned with the quality of its water and
9 its impact on the health of our people. The obvious
10 purpose of the treatment of our program is to protect
11 those who drink our water, and that is related to the
12 quality of a water that we withdraw from the river.

13 In both cases health-related
14 implications are an overriding factor, and what
15 people in my industry like to say is that we impact
16 the health of the people that we serve more than the
17 combined medical resources in our community, and we
18 touch them every single day.

19 The good news for our company is that
20 the better the state of the river the easier it is
21 for us to treat the water. Yet, despite the improved
22 quality of the raw river water, the result of our
23 treatment must meet stringent regulations of the
24 Federal Environmental Protection Agency, as well as
25 the Tennessee Department of Environment and

1 Conservation. We take that responsibility seriously
2 because the health of the people we serve depends on
3 it.

4 It is worth noting here that Tennessee
5 American has never had a water quality violation. In
6 the decade since its founding, TVA has transformed
7 the Valley economically, and it sustains that
8 transformation even today.

9 In addition, TVA's agricultural, pest
10 control, river management, recreational programs, and
11 other efforts compliment the work of water utilities.
12 To that extent it is fair to say that those utilities
13 have a significant impact on how we positively affect
14 the health of the people in the Valley. That is the
15 responsibility that TVA and we cannot and do not
16 ignore.

17 However, when TVA is looking at
18 changing the operation of the Tennessee River, I
19 would urge that it take into consideration any
20 potential impact on the drinking water that utilities
21 like Tennessee American provide. Any changes to
22 current river operations must consider the impact on
23 the health of the people in the Valley, as well as
24 the economic impact that any change would have on the
25 water utility's customers.

1 Every water utility has to be
2 considered a player if the Agency begins considering
3 any changes in its river operations. The third
4 aspect of Tennessee American's partnership or shared
5 vision with TVA has to do with our common goal of
6 improving the economic vitality of the areas we both
7 serve.

8 TVA's success in taming the river has
9 helped us to stabilize the economy of its service
10 area and that area has blossomed as a result. TVA's
11 role as an economic steward of the region is
12 well-known, but that role is not limited just to its
13 service area.

14 Its stewardship also includes
15 effective management of barge traffic on the river in
16 two respects. That barge traffic helps sustain the
17 Valley's economy and the financial health of states
18 as far away as Iowa whose farmers and manufacturers
19 ship their goods to this area via the river. TVA's
20 reach into the midwest in that respect demonstrates
21 that it's not just a regional agency.

22 Professional river management also
23 helps minimize the likelihood of barge accidents that
24 could pollute the river with potentially disastrous
25 consequences. That means keeping water levels high

1 enough to ensure safe barge traffic.

2 In our own way Tennessee American also
3 contributes to the economic development of our
4 growing service area, quality water at affordable
5 rates and lots of it. It's an invaluable tool for
6 attracting economic development, but Tennessee
7 American, by partnering with Chattanooga and Hamilton
8 County in their economic development efforts, has
9 gone one step further.

10 A couple of years ago we secured rate
11 approval from the Tennessee Regulatory Authority for
12 an economic development rider which offer incentives
13 to companies to locate in our area or to expand their
14 current operations.

15 In this regard, we look forward to
16 continuing a productive partnership with TVA in
17 protecting the Tennessee River, protecting the health
18 of the people we both serve and improving the
19 economic lives of the people in the Tennessee River
20 Valley communities to whom we market our services.

21 I would like to close by mentioning an
22 activity that our company implemented through a
23 partnership with the Chattanooga Times News-Free
24 Press newspaper and the Tennessee Aquarium in
25 connection with the annual safe drinking water week

1 and which illustrates our environmental education
2 program, as I mentioned earlier in my presentation.

3 Again, this year we sponsored an art
4 contest with our area high schools that invited
5 students to submit projects on the importance of safe
6 drinking water. And this year we had more than 40
7 entries from some very talented young men and women.

8 Paul, if you would help me put that
9 up.

10 I will show you slides of the winning
11 entries, which are displaying this week at the
12 Tennessee Aquarium in Downtown Chattanooga. Each
13 picture is different, of course, and the program not
14 only brings environmental education into the schools
15 but also to the 250,000 people we serve through news
16 articles in the Times Free-Press and the exhibit at
17 the aquarium.

18 Paul, if you could bring the next one
19 up and the next. This was the winning entry, by the
20 way, and the next one this one was 2nd place.

21 Thank you again for the opportunity to
22 speak with you today, and I know our group will be
23 happy to respond to your questions.

24 MR. BRUCE SHUPP: Okay. If the panel
25 would come up to the chairs, please. Let me remind

1 the council that we use this highly mechanized
2 technique to get recognized for questions.

3 Okay. Miles.

4 MS. MILES MENNELL: I want to address
5 this to Bill, and I just need some clarification,
6 please, your company provides water -- drinking water
7 exclusively for the City of Chattanooga or is there
8 also a municipal -- are you it in Chattanooga?

9 MR. BILL FORSYTH: We're it.

10 MS. MILES MENNELL: So just for my
11 understanding, so you're not limited then by how much
12 water you can draw out of the river, you draw
13 whatever is needed to meet the needs of Hamilton
14 County and Chattanooga?

15 MR. BILL L'ECUYER: Can you hear me?
16 I can't hear me.

17 You raise a very good question, and I
18 think it's one that needs a little understanding. We
19 are the public water supply utility for the greater
20 Chattanooga area. As a water utility -- any water
21 utility, whether we're private or public, the people
22 in the industry, their objective is that nobody ever
23 turns a faucet and the water doesn't come out and
24 it's not to the quality level that that individual is
25 expecting, and that's how they look at their planning

1 and their long-term planning.

2 We are very similar in our planning
3 efforts as TVA is with their power. They look long
4 range. We have to look long range in order to be
5 able to have the assets in place when the demand is
6 there. I've told you how the clock works, and I
7 apologize.

8 MS. MILES MENNELL: That's quite all
9 right. My other question then is, as the provider
10 for the Greater Chattanooga and Hamilton County area,
11 are you limited to that area or can you provide water
12 to other areas?

13 What are the constraints on you in
14 terms of drawing that water out?

15 Is there a limited service area or can
16 you be shipping it off somewhere else?

17 MR. BILL L'ECUYER: I think you have
18 asked me two questions, and let me try to address
19 them. One is what's our limitation -- is there a
20 limitation to what we can take out of the river?
21 Legally there's probably no limitation as to what we
22 can take out of the river. Physically there's a
23 limitation to what we can take out of the river.

24 Our plant right now is -- has a
25 capacity of 62 MGD, 62 million gallons a day, we

1 average 40.

2 Back in the '70s when Chattanooga was
3 much more highly industrialized, our facility was
4 capable of withdrawing 70 million gallons a day. We
5 have shut down part of our facility to drop it down
6 to 62. What we're experiencing is that we are really
7 seeing less use per capita.

8 If you look at by household
9 especially -- I shouldn't even say especially. We
10 have -- we are a wholly owned subsidiary of a larger
11 company and had a study done which shows that people
12 are really using less water now than they did ten
13 years ago. We attribute it to conservation messages.
14 We attribute it to local requirements, zoning or
15 plumbing requirements of putting low-flow fixtures in
16 place, appliance manufacturers who sell appliances
17 based on saving on utility costs.

18 Can I go outside of the Chattanooga
19 area?

20 Our franchise is much different than
21 what you would expect because of the time frame of
22 when we were created in the 1860s. Our franchise
23 comes from the state and our franchise states that we
24 can serve the greater environs of Chattanooga, and I
25 never really did understand that, but we serve down

1 into the North Georgia community, so we go across the
2 state line. We are inside of the watershed. We have
3 never supplied outside of the watershed.

4 Does that answer your question?

5 MS. MILES MENNELL: Sort of, kind of,
6 but not going outside watershed has been by your
7 choice?

8 MR. BILL L'ECUYER: Say it again.

9 MS. MILES MENNELL: Not going outside
10 or not supplying outside of the watershed has been by
11 your company's choice? You simply haven't taken your
12 business outside of the watershed?

13 MR. BILL L'ECUYER: You know, it's
14 probably been as a result of a couple of things. One
15 is cost to go outside, and really nobody's really
16 ever asked us to go outside.

17 MR. BRUCE SHUPP: That's a good
18 reason.

19 MR. ED WILLIAMS: What are your
20 thoughts of taking your water to Atlanta?

21 MR. BILL L'ECUYER: My thoughts on --

22 MR. ED WILLIAMS: Taking the water to
23 Atlanta.

24 MR. BILL L'ECUYER: -- selling water
25 to Atlanta?

1 MR. ED WILLIAMS: Yeah.

2 MR. BILL L'ECUYER: My thoughts on
3 selling water to Atlanta is that -- the issue is
4 taking water out of the Tennessee River and sending
5 it down to Atlanta, and I see that as a public policy
6 question. That's not a question for me or for my
7 company to solve. You know, that has to be resolved
8 by the people who establish public policy.

9 MR. BRUCE SHUPP: Greer.

10 MR. GREER TIDWELL: Thanks, Ed, for
11 asking the question. I don't know which person was
12 speaking on this. It was my cohort from Tennessee
13 Tech. Nice to see another civil engineer down here,
14 Ben.

15 When -- the Corps of Engineers, as I
16 understand right now, is under some pressure for sort
17 of overall reform of their mode of operation, and I'm
18 curious what the Nashville office is feeling, how the
19 pressure is coming down on the Nashville office for
20 Corps reform.

21 MR. BEN ROHRBACH: Well, that's a very
22 good question. I'm not sure that I am the
23 appropriate person to speak to that. I think we are
24 getting quite considerable pressure for reform
25 from -- I would say from the environmental sector

1 primarily.

2 Is that what you're referring to,
3 Greer?

4 MR. GREER TIDWELL: Yeah.

5 MR. BEN ROHRBACH: And we are making
6 and taking some steps to look at revising the
7 operation of our system to satisfy some of those
8 desires, but I really am removed somewhat from the
9 political pressure that may be being leveraged
10 against the district. So I would defer your question
11 ultimately to Mr. William Barron, whom I referenced
12 at the beginning of my presentation.

13 But I can say that you are correct, we
14 are receiving outside influences to shift us more
15 away from strictly a hydropower navigation sort of
16 style of basin management towards one or more of
17 water supply and environmental stewardship. So I'll
18 leave it at that.

19 MR. GREER TIDWELL: Another question
20 for Ben, if I could, in the TVA's river operations
21 study process that's going on right now, one of the
22 things that seemed to surface is the importance of
23 updating the river management process to meet
24 technological advances that seem to be coming on a
25 nearly daily basis and certainly every few years.

1 Can you explain something about what
2 the Corps has done to integrate technological
3 advances in both information and analytical processes
4 to their river management program?

5 MR. BEN ROHRBACH: Well, we are -- we
6 are looking at a number of upgrades, specifically to
7 several of our hydropower plants in the district, to
8 take advantage of more efficient turbines and the
9 like to -- essentially to generate greater power from
10 the same volume of water.

11 We are also instituting Corps wide a
12 reservoir system model called CWINS, which is the
13 Corps Water Management System, which is going in the
14 direction that you indicated of real-time
15 precipitation, forecasting, and inflow forecasting
16 for our reservoirs, and then essentially being able
17 to make decisions or judgments on reservoir
18 operations based on information that may only be an
19 hour old versus, you know, however long, you know,
20 previously. So we are moving in that direction.

21 Again, Mr. Barron is very heavily
22 involved in the implementation of that system in our
23 district. So if you have got any -- if you have got
24 any more technical questions in that regard, I would
25 ask you to give him a call and he will be glad to

1 field any of those.

2 MR. BRUCE SHUPP: Stephen and then
3 Lee.

4 DR. STEPHEN SMITH: I think Susan was
5 talking about the consumptive use and sort of talking
6 generally. I'm just curious, and maybe you hit on
7 this and it went past me, but have you done studies
8 similar to this in other watersheds or other areas
9 that document this?

10 And I am just wondering how TVA
11 compares in the thermal usage to other areas. And I
12 know that in some of the areas there's the -- you
13 know, the utilities are using quite a bit, and
14 there's also a lot for agriculture that are going in
15 a lot of areas, and that tends to, I guess, be a more
16 consumptive use because it may or may not get
17 returned, I guess. I would like to understand that a
18 little better, you know.

19 MS. SUSAN HUTSON: I will try to
20 answer that.

21 DR. STEPHEN SMITH: Okay.

22 MS. SUSAN HUTSON: Consumptive use
23 really varies by, I would say, like category of use.
24 For example, thermoelectric tends to be a low
25 consumptive use if for cooling it's once-through

1 cooling.

2 DR. STEPHEN SMITH: Okay.

3 MS. SUSAN HUTSON: If you have other
4 than once-through cooling consumptive use in the old
5 technology, you know, seems to be -- is a little bit
6 higher.

7 And in the Tennessee Valley most all
8 the plants are once-through cooling except when you
9 get into the headwaters. When you have -- you know,
10 they are smaller plants. They are 4 million gallons
11 a day type plants and they tend to be offstream
12 cooling, I think to take care of, you know, the
13 thermal or -- I'm not really sure of those reasons.

14 When you get into agriculture almost
15 all the water applied for irrigation is consumptively
16 used. So then you tend to get very high consumptive
17 use numbers. So that's -- that's where you see those
18 differences in consumptive use. It's really by
19 category of use.

20 Public supply varies because some of
21 that water that's delivered by a public supply goes
22 to a wastewater treatment, is processed and returned.
23 Some of it goes into, you know, a septic tank system
24 and isn't immediately returned to the environment.

25 DR. STEPHEN SMITH: I see. And I

1 don't know if you have looked at this at all. This
2 may actually be a question for Greg and some of the
3 people from TVA.

4 There is -- I know EPA is looking at
5 the impingement issue associated with once-through
6 cooling systems or cooling systems generally for
7 thermoelectric, and there is a lot of concern about
8 that. I think there's -- courts have directed EPA to
9 develop policies on that.

10 I am wondering how that will affect
11 this whole dynamic because -- and I may be wrong on
12 this, but my understanding is that once-through
13 cooling tends to be worse for some of the impingement
14 issues associated with, you know, sucking large
15 volumes of water through that are obviously returned
16 but there is damage to biological life as they go
17 through.

18 MS. SUSAN HUTSON: I would like to
19 turn that question over to TVA to answer that. I
20 don't know those kinds of details, but I would like
21 to answer your other question.

22 When I am talking about watersheds
23 across the U.S., I am talking about the water
24 resources regions. Okay. So on a very broad basis
25 not the Delaware or the Susquehanna or something on a

1 different scale.

2 This is the only watershed in the
3 region that has had this kind of detailed water use
4 study applied to it where -- and this only occurred
5 with the 2000 data because of the support of TVA.

6 Generally when you looked at the
7 consumptive use before, the only return flows -- the
8 returns flows were the wastewater return flows or
9 somebody may have done a study in the past and
10 brought those data, you know, into the future.

11 So with the TVA study here the fact
12 that data was collected for each of the outfalls and
13 intake points really allowed us to identify what that
14 consumptive use is, and that is really unique in the
15 country across the water resources regions.

16 And then I would like to turn that --

17 DR. KATE JACKSON: I will take it.
18 First let me just remind everybody that one of the
19 reasons that TVA did fund this and we were so excited
20 about doing this was a recommendation from you-all to
21 do a comprehensive evaluation of where the water
22 comes from, where it goes to, where the straws are in
23 the system. So that's one of the reasons we did
24 that. I just wanted to make sure you know we
25 actually did something you asked us to do.

1 The second thing is, those are the 316
2 B rules that you're talking, and they are kind of in
3 two parts. One is the rules for new facilities,
4 which are impact promulgated, and there are then a
5 set of rules that are being worked on now and are in
6 the comment period or existing facilities.

7 There are two issues largely that
8 impact impingement. One is where the intake is, is
9 it high or low, and the other one is the amount of
10 flow. So one of the things that all of the users
11 that have existing facilities are working on is, what
12 kind of mitigation strategies can you have?

13 Can you somehow change the embayment
14 within which you withdraw water or change the
15 structure of it?

16 Can you create some sort of a holding
17 pool?

18 So there are a lot of issues
19 associated with that still. So I don't think we're
20 clear on exactly how those rules are going to happen
21 and then how much time we're going to have to begin
22 to develop the technologies or the structures that we
23 will need to be able to meet those requirements.

24 DR. STEPHEN SMITH: I guess the
25 question I was getting at is: Do you anticipate that

1 TVA is going to have to change the volume of water
2 that its using in response to these? I mean, it may
3 be premature to say.

4 DR. KATE JACKSON: I don't think I can
5 categorically say that, but our goal would be not to
6 have to derate our facilities and can we have an
7 acceptable intake structure or placement or incoming
8 pool that would slow that flow down in a way that
9 would allow us to not entrap. So, you know, I think
10 we and everybody else in the country who has existing
11 facilities that would be covered by the existing
12 facility 316 part are working on that.

13 MR. BRUCE SHUPP: Lee

14 MR. LEE BAKER: Yes. Dick, I would be
15 curious about your assessment of -- you talk about
16 the out-of-basin movement of water to New York. Give
17 me a sense of what the commission feels is the
18 economic value to the commission on that, and then
19 also, if there exist in perception or reality, any
20 threat to the basin itself in terms of movement of
21 the water out of the basin.

22 MR. DICK TORTORIELLO: Okay. One
23 thing I didn't mention in what I discussed and talked
24 about for the New York diversion is that New York
25 City has these three reservoirs and there was, I

1 guess you would call it, a disagreement about how
2 much water New York City can take out of the basin,
3 and especially during the drought of the 1960s that
4 we experienced for a four- or five-year drought.
5 This situation almost went to court and then there
6 was a settlement.

7 The Supreme Court appointed a river
8 master at that time. Well, it was 1954 and the
9 drought occurred later. The Supreme Court of the USA
10 gave New York City an allocation or permission to
11 divert 800 million gallons of the water a day once
12 completion of its third reservoir was done. So that
13 was actually obviously before the commission was
14 established. So that's pretty much in stone.

15 In answer to your second question, the
16 Upper Basin, especially in New York State, the people
17 in the Upper Basin, many of the people, I would not
18 say all of them, but many of the people feel that New
19 York City was allowed to take more water than they
20 thought would be reasonable, to put it in those
21 terms, and that there are still contention and we are
22 trying to deal with that, especially when it comes to
23 fishery issues, because the conservation flows below
24 these three reservoirs are much lower, at least
25 during the times of the drought, that would be needed

1 to support the cold-water fisheries that have
2 developed, by the way, as a result of the reservoirs.

3 So the problem is that the people in
4 Upstate New York or the area of the basin do feel
5 that more water ought to be released to support
6 downstream uses of the tributaries and of the
7 tailwaters and that they feel too much water is able
8 to go to New York City, even through it's mandated by
9 the Supreme Court. So it has become and continues to
10 be an issue that as long as New York City has the
11 right to take water, I'm not quite sure, unless the
12 parties that are against this go back to court.

13 MR. LEE BAKER: Economically how does
14 it impact the commission exactly? What do they pay
15 for the water?

16 MR. DICK TORTORIELLO: Okay. New York
17 City does not pay the commission for any of the
18 water, pay us for any of the water it takes.

19 MR. LEE BAKER: Okay.

20 MR. BRUCE SHUPP: I have another
21 question for you, Dick. Could you explain the -- the
22 decision-making board or the decision-making
23 processes which you go through the -- for example,
24 the drought issues, the controversial issues. Who's
25 on the board? How is it composed? How do you

1 operate?

2 MR. DICK TORTORIELLO: As far as the
3 commission board?

4 MR. BRUCE SHUPP: Yes.

5 MR. DICK TORTORIELLO: Well, it's
6 operated by alternates chosen by the four Governors
7 and the Federal Representative, and typically most of
8 our work by the commissioners is on the
9 recommendations of staff as far as project review
10 applications. We do get involved in other areas of
11 water resource work obviously besides just that.

12 When it comes to drought, for example,
13 a drought operating plan, there was a resolution --
14 not a resolution, a meeting of the minds of the
15 parties to the Supreme Court decree, which was the
16 four states and the City of New York. In 1983 they
17 came up with good faith recommendations. They are
18 called good faith negotiations that came up with
19 recommendations from these parties.

20 And one of the recommendations was to
21 provide a drought operating plan because it became
22 very obvious in the 1960 drought that there was not
23 enough water in the system for New York to release
24 and meet flow objectives. I mentioned Montague,
25 which is just downstream water of New York State on

1 the Delaware, and also to emit 800 million gallons a
2 day to the city.

3 So a drought operating plan was
4 formulated with the help of the parties and with the
5 assistance of the commission. And eventually this
6 was approved by resolution of the commission, and we
7 have a drought operating plan that I referred to.

8 A lot of the other work is done by
9 committees. The current comprehensive plan study,
10 which is underway, is being formed by a water
11 advisory council composed of about 40 outside people
12 being part of this council and going over the
13 recommendations of staff as far as what ought to be
14 looked at in the five key result areas of the
15 comprehensive plan study.

16 So there's a lot of outreach more
17 recently than there has been in previous years with
18 the commission.

19 MR. BRUCE SHUPP: So outside
20 stakeholders get put in through that advisory group?

21 MR. DICK TORTORIELLO: Yes.

22 MR. BRUCE SHUPP: And the main
23 deliberations are done by the state and city body?

24 MR. DICK TORTORIELLO: Yes.

25 MR. BRUCE SHUPP: Their

1 representatives?

2 MR. DICK TORTORIELLO: And also, once
3 the implementation or strategy phase of this plan is
4 created, the implementation has to be signed off by
5 the Governors of the four states.

6 MR. BRUCE SHUPP: Thank you. Ed.

7 MR. ED WILLIAMS: Yes, I have got two
8 questions, Mr. Chairman, first on the Tennessee side,
9 and then I would like to ask a Delaware follow-up, if
10 I could.

11 On Tennessee American, or any of the
12 panel, what is the current financial structure on the
13 withdrawal side? What are you paying in terms of
14 permits and the like to take water out of the
15 Tennessee River?

16 MR. BILL L'ECUYER: If we pay anything
17 in terms of withdrawal, I don't think it's
18 significant, if anything.

19 MR. ED WILLIAMS: Then on the Delaware
20 side you-all are paying what, \$60 per million on the
21 consumptive side and 60 cents per million on the
22 non-consumptive side?

23 MR. DICK TORTORIELLO: Those are the
24 charges that we receive from surface water users that
25 do not have entitlements.

1 Where you have a city taking water for
2 itself, say, a municipal supply, most of the cities
3 in the basin are pre 1961, pretty obviously, and so
4 they don't pay us for that quantity of water that
5 they take within the entitlement. They would have
6 their own costs of withdrawing the water, treating
7 the water, distributing the water.

8 MR. ED WILLIAMS: Sure, but I am
9 talking about just the withdrawal. Are there any
10 private for-profit companies?

11 MR. DICK TORTORIELLO: Oh, yes. Some
12 of the purveyors pay us for water use, industries pay
13 us, and so do the utilities. If there's a surface
14 water use of any magnitude between New York and that
15 downstream part on the bay that I mentioned, we would
16 get a payment for surface water withdrawals, assuming
17 that the party did not have an entitlement.

18 MR. ED WILLIAMS: I am talking about
19 for drinking water. Excuse me.

20 MR. DICK TORTORIELLO: For any kind of
21 water.

22 MR. BRUCE SHUPP: Paul and then Greer.

23 DR. PAUL TEAGUE: I will ask this
24 question of any or all of you. What is the status of
25 desalt as a supply, No. 1? No. 2 is, what is the

1 cost per gallon of desalting?

2 MR. DICK TORTORIELLO: I can answer
3 you for the Delaware Basin. In the Delaware Basin
4 presently there is no desalinization process being
5 used.

6 During the drought of last year in
7 Wilmington, Delaware it was suggested as a
8 possibility because Delaware does not really have any
9 appreciable surface water storage, any reservoirs,
10 and they had some record stream -- record low
11 streamflows in Delaware.

12 Where that's going, I don't know. As
13 far as the cost, someone else would have to address
14 that. I know it's expensive.

15 MR. BILL L'ECUYER: The cost of
16 desalinization has come down a little bit. It's
17 being weighed against the cost of developing supply.
18 I know you-all are wrestling with, you know, what's
19 the supply and what you do, but if you -- you know,
20 if you look a little further south down to Florida,
21 those people are wrestling with the fact that they
22 don't have enough. So when you get into that
23 situation, then it's a matter of how much does it
24 really cost not to have any water.

25 So you will find cities, like Tampa,

1 which I think is constructing the largest
2 desalinization facility in the United States.
3 There's also one being -- either being considered or
4 being built in Southern California. So you're going
5 to tend to find them now in areas where there's --
6 there isn't a sufficient supply to maintain the
7 economy for the expected economic development that
8 will happen in that area.

9 MR. PHIL COMER: Wilmington, North
10 Carolina has a desalinization plant. Are you
11 familiar with its costs or anything like that?

12 MR. DICK TORTORIELLO: Wilmington,
13 Delaware?

14 MR. PHIL COMER: No, I'm talking about
15 Wilmington, North Carolina. They have had one for 30
16 years.

17 MR. DICK TORTORIELLO: No, I am not
18 familiar with that.

19 MR. BRUCE SHUPP: Greer.

20 MR. GREER TIDWELL: Yeah. I was
21 listening to Ben's comments about the Corps and the
22 money that comes in for consumptive use of the water
23 that's going up to the U.S. Treasury. It kind of
24 reminds me of paying library overdue fees, it always
25 goes to the city treasurer instead of the library.

1 What I got to thinking about is
2 whether or not there is a -- there is any hope of
3 getting some of that money rerouted back to making
4 those consumptive uses pay for better recharge,
5 groundwater protection and/or groundwater recharge.

6 What I would like to know about is
7 whether, Ben, you think there's any chance of making
8 that happen, and from the other panelists, what's
9 your experience or what you know about some research
10 that may have been done on the effectiveness of
11 groundwater research enhancement measures, whether
12 it's new kind of parking area pavement or riparian
13 zones protections. So it's kind of a two-part
14 question.

15 Ben, you get the money question and
16 everybody else gets the technical question.

17 MR. BEN ROHRBACH: Yeah. Once again,
18 you know, I don't know that I am fully qualified. I
19 think everything is on the table. There's been quite
20 a bit of discussion along those lines. And for the
21 foreseeable future the money is going to the U.S.
22 Treasury.

23 I think something -- a change like
24 that would require direction from Congress. Well, we
25 all know how, you know, spotty that can be, getting

1 something through. So I would say those types of
2 measured are being considered. I really don't know
3 what the timetable is on that, and I think for the
4 second part of your question Susan would probably be
5 the most qualified.

6 MS. SUSAN HUTSON: You were asking if
7 I knew something or we knew something about some --
8 the results of artificial recharge?

9 MR. GREER TIDWELL: Not necessarily
10 artificial but an enhancement of recharge either
11 through riparian buffer zones or communities getting
12 some support to do infiltration areas, you know, the
13 water gardens.

14 MS. SUSAN HUTSON: I would say I don't
15 know numbers. I can't associate numbers with that or
16 I can't think of any other examples besides the
17 Chattanooga issue, but can I not answer your question
18 and just make two others comments?

19 MR. GREER TIDWELL: It's the political
20 thing to do. Go ahead, Susan.

21 MS. SUSAN HUTSON: And just be honest
22 about it.

23 MR. GREER TIDWELL: Well, just pretend
24 I asked another question.

25 MS. SUSAN HUTSON: Unless somebody

1 else can answer that question.

2 MR. GREER TIDWELL: I would love to
3 hear Dick's experience with that, if he's had any. I
4 know you talked about the groundwater protection
5 zones. I wonder if you have any --

6 MR. DICK TORTORIELLO: The groundwater
7 protection zone is -- in these particular two
8 counties outside of Philadelphia it became pretty
9 obvious at times that some of the groundwater levels
10 were being depleted quite rapidly, and in order to
11 protect that what essentially the commission, on
12 behalf of the State of Pennsylvania, did was
13 establish a registration program for well withdrawals
14 over 10,000 gallons a day. The commission reviews at
15 50,000 gallons a day, but this went down to
16 10,000 gallons down a day.

17 So we have a process -- we did a
18 modeling, a very crude modeling as far as how much
19 water is being used and how much water is available.
20 So the commission looked at areas where they would
21 discourage additional groundwater withdrawals.

22 But beyond that, the only area that I
23 know of, at least in the Delaware Basin, that's doing
24 something along the lines that you're questioning,
25 the State of Delaware is using an aquifer storage and

1 recovery system in which during good times they
2 inject cleaner treated water into wells that were
3 specifically designed to input water into the
4 aquifer. During times of drought this water would
5 also be available for additional use, that's the only
6 thing -- that's the only system I know of, at least
7 in the Delaware Basin.

8 DR. PETER BLACK: Dick can correct me
9 if I am wrong, but I think it's perfectly true that
10 the Delaware River Basin Commission is not involved
11 in any major infusion of monies in the New York
12 portion of the state, but New York City is, and
13 that's not part of the Delaware River Basin
14 Commission's charter or anything to do with it.

15 New York City is the largest of five
16 watersheds in the United States that are surface
17 water supply watersheds that are not filtered.
18 Syracuse is the smallest of those five. Both of them
19 are in New York State. Both of them have agriculture
20 on the watersheds, whereas, the other three
21 watersheds around the country are all forested and in
22 public ownership.

23 In 1989 New York City decided that the
24 time had come, because they were under the gun from
25 EPA, to revise the watershed rules that are in New

1 York State and under the Department of Health and
2 said, among other things, that there would be no
3 grazing within 1,000 feet of a large stream. That
4 wiped out all of the grazing, of course, in the city
5 watersheds because there's no land that isn't within
6 1,000 feet of a live stream in the Catskills.

7 The people in the Catskills
8 immediately got up in arms and the city eventually
9 saw the errors of their ways, and in 1992 granted
10 about \$3.5 million to the New York State Water
11 Conservation Committee to administer through the
12 counties a program of whole farm planning, public
13 education, demonstration farms, and something else
14 that skips my mind at the moment.

15 Then there was a major watershed
16 agreement between the state EPA and the counties that
17 resulted in 3 -- I think it was \$350 million, it's on
18 that order of magnitude, \$350 million going from the
19 city into the counties and townships. It's known as
20 The Settlement. That provides monies for building
21 sewage treatment systems and improving community
22 water supplies, right?

23 I don't know how much the commission
24 is involved in that, I don't believe they are very
25 much, but that's a major infusion of dollars from New

1 York City for the water supplies in the Catskills,
2 also to buy up watershed lands, I forgot that, which
3 is how they got involved in restoring watersheds,
4 which got me involved initially because I wanted to
5 know what they were restoring.

6 MR. GREER TIDWELL: Susan, do you want
7 to add what you were going to say on behalf of the
8 survey?

9 MS. SUSAN HUTSON: I just wanted to
10 make a comment on the groundwater resources in the
11 watershed. About 20 percent of the groundwater in
12 the watershed of the public supply is groundwater in
13 the watershed. Many of those groundwater sites have
14 been identified as groundwater under the influence of
15 surface water, which means that they have to treat
16 the water as if it were surface water. And treating
17 surface water is more expensive than treating
18 groundwater. So that's always a desirable direction
19 if you're looking for cheap water rates, you're not
20 treating the water to that level.

21 So there is a shift and some
22 conversation about shifting from those groundwater
23 resources to, you know, maybe regional surface water,
24 you know, supplies of water. I don't know if that
25 trend is going to continue. I know the state was

1 very interested in regionalizing water supplies, EPA
2 was very interested in regionalizing water supplies,
3 but I am hearing rumor from other states and other
4 areas that actually going back into groundwater
5 supply is becoming a more popular alternative for
6 different reasons.

7 And then I wanted to say also, can you
8 measure this groundwater recharge? No, we have very
9 general equations for groundwater recharge.

10 What we lack in the State of Tennessee
11 right now is a really comprehensive groundwater
12 monitoring network. So it's difficult, for example,
13 after the last droughts, we're not really able to
14 determine, have our groundwater resources recovered
15 sufficiently from the drought or what is that rate of
16 recovery, you know, following the drought. So there
17 is sort of a gap.

18 These comments just really address the
19 very general picture, not the specific region.

20 MR. BRUCE SHUPP: We have time for one
21 last question and one quick response.

22 DR. PAUL TEAGUE: Mr. Chairman, I
23 would like to overrule that. It's time for us to
24 eat. You're cutting into our eating time.

25 DR. STEPHEN SMITH: I have a comment.

1 I was just wondering about the study. Is it
2 available? I mean, can we get -- do we have access
3 to copies of this?

4 MS. SUSAN HUTSON: It's in press. It
5 will be out very soon.

6 DR. STEPHEN SMITH: Okay. Is that
7 something that the -- those of us on the council that
8 are interested -- can TVA facilitate getting that or
9 do we need to talk to you directly? I mean, how does
10 that work?

11 UNIDENTIFIED SPEAKER: We can get you
12 a copy.

13 MR. BRUCE SHUPP: I really want to
14 thank you-all for having to work within our time
15 constraints, and I apologize for that, you have so
16 much more to say than we could hear today from you.
17 We thank you very much for coming and thank you for
18 giving your presentations.

19 All right. Lunch.

20 (Lunch recess.)

21 MR. BRUCE SHUPP: Take your seat,
22 please. Okay. There's not much point in giving
23 instructions without council members sitting down
24 because when they do hear them they don't follow
25 them. So, you know, if they don't hear them,

1 obviously they will never follow them.

2 The next group is -- we heard the
3 regional viewpoints and a national perspective this
4 morning on water supply, and now we're going to hear
5 the state and local viewpoints.

6 And to begin that discussion is
7 Mr. Tom Littlepage. Tom graduated from Auburn with
8 Bachelor of Science in 1980, and he spent --
9 fulfilled an ROTC commitment, spent nine years in the
10 Air Force in the Airborne Warning Control Unit in
11 Oklahoma.

12 He came back to Alabama in '92 and
13 began his career with the air division of the Alabama
14 Department of Environmental Management. And then in
15 March of '94 he made a huge mistake, he transferred
16 to the Office of Water Resources.

17 Currently Tom is the Deputy Division
18 Director of the Alabama Office of Water Resources.
19 He's working as a coordinator between the technical,
20 political, and legal aspects of developing a
21 negotiated agreement for both the ACT and ACF river
22 Basin Compacts, and I can assure you that this is a
23 true water wars warrior who has been in it for what,
24 five --

25 MR. TOM LITTLEPAGE: About nine years.

1 MR. BRUCE SHUPP: But the heated stuff
2 has been in the last five.

3 MR. TOM LITTLEPAGE: Yes.

4 MR. BRUCE SHUPP: He will be able to
5 tell you what water conflicts are all about. So Tom,
6 go ahead.

7 MR. TOM LITTLEPAGE: Thanks, Bruce. I
8 hope everybody can hear me. I don't have any slides.
9 I just wanted to talk just for a little bit. I am
10 getting as much out of listening to some of this
11 conversation as anything we may be able to provide
12 through this process.

13 As Bruce indicated, I have been with
14 the Office of Water Resources since '94. The office
15 was created or officially established in 1993 as a
16 direct outgrowth of the quote/unquote water wars,
17 which began as a lawsuit by the State of Alabama
18 against the Army Corps of Engineers over some
19 proposed reallocations. We heard some lessons on
20 reallocations this morning.

21 We, the State of Alabama, felt like
22 the Army did not adequately take into effect the
23 downstream implications of some reallocations, and
24 Georgia was proposing to build a little reservoir
25 about 5 miles upstream of the state line and it just

1 added to a little fuel to the fire. We felt the
2 Corps needed to do a better job of assessing impacts.

3 We filed a lawsuit that led to a
4 series of events which created a 50-year planning
5 horizon study called the ACTHF Comprehensive Study to
6 look at the availability of water in the ACT, and
7 again, that's the Alabama Coosa-Tallapoosa, the
8 Apalachicola-Chattahoochee-Flint River basins, the
9 first one is essentially between Alabama and Georgia,
10 the second is between Alabama, Georgia, and Florida,
11 to look at the availability of the water resources in
12 those two river basins, then what were the demands
13 upon them for the next 50 years, and the wide-ranging
14 level of demands in terms of both consumptive uses,
15 environmental demands, navigation, and there was a
16 huge amount of efforts put forth through that.

17 So a lot of good efforts went into
18 looking at forecasting what those demands were, and
19 then that led into, how are we going to develop a
20 framework for the future?

21 And one of the specific elements in
22 that study was the coordination mechanism. And as a
23 result of that, it led into legislation which was
24 signed into law in late 1997 establishing two
25 separate river basin Compacts, just similar to the

1 process that you see with the Delaware River Basin
2 Compacts. These are structurally a little different,
3 but they are two separate but closely linked
4 Compacts.

5 Our office has been involved with that
6 effort since the beginning, and as I stated, was one
7 of the key reasons we established the office. The
8 other reason was in Alabama there had never been any
9 effort to undertake to look at how much water was
10 being used and where it was being used.

11 So in addition to just representing
12 Alabama and interstate issues, there was also the
13 decision that we needed to have a better
14 understanding of water use in the state. So the two
15 big things that led to the establishment of our
16 office was the requirement to understand water use
17 throughout the state and to represent us in this
18 quote/unquote water war, but the legislation was far
19 more encompassing than just simply those two things.

20 Although, the emphasis over the
21 initial years were focused in those two areas, we
22 have the legislative mandate to do wholesale
23 comprehensive water resources planning and management
24 throughout the state, and we're beginning to
25 undertake that.

1 Now, as we have evolved in this
2 process we have a better understanding of the
3 interstate issue and how it looks like it may turn
4 out. We're also seeing, excuse me, problems within
5 the state. You know, Alabama has a history, like a
6 lot of the areas in the southeast, where there's
7 always been an abundance of water. It was plentiful,
8 it was virtually free, and we didn't need to take any
9 actions to manage it. Those people out west are the
10 ones who had to always deal with those kinds of
11 problems.

12 Now we're seeing in the southeast and
13 in Alabama that we do have instances where literally
14 there's not enough water to go around at certain
15 times of the year. For the vast majority of the time
16 there's plenty, but there are those isolated
17 instances where it's becoming a problem.

18 And given the fact that the water
19 resources that we have are not an infinite resource
20 and the growth and economic expansion is going to tax
21 those existing resources even further, we need to be
22 undertaking practice plans now to work to manage
23 those.

24 So we have a process in place where we
25 register usage throughout the state. There is also a

1 process in our legislation that will allow us through
2 a formal assessment process to identify where we may
3 have problems with the adequacy of the supply in a
4 given area, what we call a capacity stress area.

5 We have to undertake what's called a
6 critical use study to look at that and determine
7 whether we would actually implement physical
8 limitations in a person's ability to withdraw or use
9 water. We have never done that, but certainly as
10 time goes forward and we work hard in the state to
11 understand the uses and the implications of future
12 demands we will undertake some of those studies to
13 look at that.

14 I am encouraged by what I see here
15 this morning. I see it as sort of the foundation for
16 what I hope is a long-term process related to where
17 water use and planning is going in the future. We
18 have undertaken efforts and been involved with
19 efforts throughout the state to look at a watershed
20 approach. The watershed aspect has been a
21 fundamental process with regards to the interstate
22 negotiation.

23 We have long said that to truly manage
24 a basin or understand problems within a basin you
25 can't -- you cannot be bound by political boundaries.

1 You have to be able to work those problems from the
2 headwaters all the way down.

3 So it's been a key aspect of what we
4 have looked to achieve in the interstate
5 negotiations, as well as looking at intrastate and
6 watershed issues that we have in Alabama, we're going
7 to work very, very closely.

8 Currently, there's a number of
9 pressures on the waters and the water resources in
10 Alabama. Some of those you may be aware of just in
11 terms of growth and normal expansion associated with
12 the cyclical nature of water, drought cycles, those
13 kind of things.

14 Approximately two years ago, I guess,
15 we saw a huge increase in the number of applications
16 for cogen plants or peaking power plants which were
17 very high water consumptive plants, and they were
18 coming in, and as alluded to with the gentleman from
19 Tennessee Water, how he definitely averted the
20 Atlanta questions, there's some very political
21 aspects and public policy aspects with regards to
22 those plants and taking a resource intensive industry
23 and its product being used outside the state.

24 An example of cogen plant is shipping
25 power, for example, out to the far west. Those are

1 not issues that the south is used to dealing with
2 that we're going to have to face. I think the
3 economics with regards to those cogen plants have
4 changed now and natural gas prices have went up and
5 we have seen some reduction in an effort to put those
6 in, but in citing several of those in the state and
7 giving a return to the economic conditions we may
8 see, again, a huge demand for those kinds of things.

9 And from a public policy standpoint,
10 we, as in other states in the southeast that have a
11 history of an abundance of water resources, are going
12 to be forced to explore the public policy
13 implications and try to come up with some kind of
14 answers with regards to that.

15 Part of that led to the creation of
16 the Governor -- the Governor of Alabama or the
17 Alabama commission on Environmental Initiatives to
18 look at not only just at water but the wide range of
19 environmental implications and the future with
20 regards to those. That commission put together
21 some -- a number of resource recommendations and
22 we're looking at those and what we will be pursuing
23 and I think trying to do some of those.

24 We're also looking at -- with regards
25 to Alabama, we have never had a policy of a minimum

1 instream flow, how much water do we need to leave in
2 these river basins. ADM or Department of
3 Environmental Management, has established policies
4 relative to the development of MPDES permits, but
5 those were relatively minimal and relatively
6 short-term. So we feel it's important from a
7 long-term perspective to do that.

8 And with those -- two of the biggest
9 things we were able to achieve, and I guess I forgot
10 to tell you, one of those, in terms of Interstate
11 Water Negotiation, we have achieved a draft agreement
12 with the State of Georgia.

13 Effective last Monday we entered into
14 a formal public comment policy period that will
15 extend from May the 5th to July the 7th. And so we
16 have a draft agreement in one of the two basin
17 Compact negotiations to look at allocating surface
18 waters for the next 30 years, and that process will
19 be continuing.

20 I think you will hear a lot about it,
21 those of you that follow interstate issues, and we
22 feel like we have been able to meet a lot of our
23 needs, primarily the establishment of a minimum
24 instream flow policy that will be effective in both
25 Alabama and Georgia, limits on interbasin transfers,

1 some addressing of reservoir operations by the Corps
2 of Engineers, and those kinds of things.

3 So we're excited about what the future
4 is. We're optimistic about how the successes and the
5 ACT may lead to some similar success in the ACF
6 because there's a lot of work relative to the
7 negotiations that are ongoing there as well.

8 And I have the web site link for those
9 of you that may want to download information with
10 regards to the ACT comment that's in public review
11 status. It's actcompact.alabama.gov. If you will go
12 to that web site, you will find the actual agreement
13 document. You will find various levels of
14 information. There's a Memorandum of Agreement that
15 was signed by the two Governors, that kind of stuff,
16 and our information for contacting us, if you would
17 like.

18 I think that will begin -- again, I
19 think that agreement will begin for us in Alabama to
20 lay the foundation for both intrastate and interstate
21 water policy that sort of follows what I see here,
22 the germination of the discussions that are going to
23 be necessary to work from a holistic standpoint with
24 regards to basin-wide issues, getting people
25 together, looking at what are the capabilities of a

1 basin to support the uses within that basin, and
2 where there are shortfalls, looking at solutions and
3 alternatives that can be jointly developed and have a
4 better opportunity for solutions on a more positive
5 public policy standpoint.

6 So I guess with that I think I am
7 about out of time. We didn't have a lot of time for
8 this. Are we taking questions now or --

9 MR. BRUCE SHUPP: We're going to take
10 them as a panel when we're finished. Thanks, Tom.

11 MR. TOM LITTLEPAGE: I noticed we
12 didn't get anybody from Georgia, so we're probably
13 doing okay.

14 MR. BRUCE SHUPP: You scared them
15 away. Thank you, Tom.

16 The next speaker is David Hardin.
17 David is the director of permitting and monitoring
18 for the Mississippi Department of Environmental
19 Quality. He joined the department in 1990 after he
20 received his BS degree in chemistry from Millsaps
21 College and his MS in geology from the University of
22 Southern Miss.

23 David.

24 MR. DICK TORTORIELLO: I would like to
25 answer one question that was asked earlier this

1 morning about desalinization costs. There is a -- we
2 have a city on the Gulf Coast that currently does
3 that, and their costs is roughly 23 cents per 1,000
4 gallons to desalinate water. I don't remember who
5 asked the question this morning.

6 MR. PHIL COMER: Repeat that, 23 cents
7 per what?

8 MS. JULIE HARDIN: Per thousand
9 gallons. Thank you for answering that.

10 MR. DICK TORTORIELLO: You're welcome.

11 DR. PAUL TEAGUE: Did you say 23 per
12 1,000 gallons?

13 MS. JULIE HARDIN: Yes.

14 MR. DAVID HARDIN: I would like to
15 give you just a little history of what the Office of
16 Land and Water Resources, some of the programs we're
17 involved with. We do have a surface and groundwater
18 permitting component with the Office of Land and
19 Water Resources.

20 In 1985 state law was passed to
21 require a permit from our office for any well that's
22 6 inches in diameter or larger or any surface water
23 withdrawal from any stream, no matter what volume,
24 and also the impoundment of water within the state
25 requires a permit from our office. We have

1 approximately 20,000 groundwater permits for wells 6
2 inches and larger and about 6,000 surface water
3 permits.

4 One of the things this allows us to do
5 is we can control the amount of withdrawals from
6 either a stream or a groundwater source. One of the
7 things we've really gotten involved with lately is
8 spacing of groundwater sources, groundwater
9 withdrawals, how close you can put those wells
10 together. We also can control the source of the
11 water from a groundwater standpoint.

12 And we were very effective in doing
13 this with our power plants. We were like everybody
14 else, we had a lot of power plants, but one of the
15 things we did not allow them to do is use potable
16 water sources to run those cogen plants. A lot of
17 them drilled wells that tapped water sources that had
18 800 to 1,000 parts per million TDS, which is not a
19 drinking water source at this time. So we kept them
20 out of our potable water sources by this permitting
21 process that we have here.

22 We can -- we have a lot of authority
23 up under that. We're rewriting those regs. They're
24 in review right now to sort of tighten up on some of
25 the other requirements of our permitting process.

1 Some of the other things we do is we
2 have a dam safety group. We licensed all the water
3 well drillers through our group. We are working on a
4 state water management plan, and some of that is what
5 I am going to talk about this morning. And through
6 that one of the things we have done is we have gone
7 through and we have prioritized the water uses in the
8 State of Mississippi, what we considered No. 1, all
9 the way down to what we will not allow.

10 We have gone through a process that
11 was pretty tough at times because there's a lot of
12 competing interests in there as to who wants to use
13 it and why, and everybody has their own agenda on
14 that.

15 We also have the authority to issue
16 water use warning or water use caution area, which we
17 can really clamp down on what can be done when we
18 have to issue a warning or a caution in a region that
19 is experiencing withdrawal or water problems.

20 And we also have, that I don't have on
21 here, a surface and a groundwater monitoring program.
22 We monitor -- we have approximately, I think, 120
23 sites with the USGS and the states for surface water,
24 and through our office we have almost 500 groundwater
25 sites that we monitor through different aquifers

1 throughout the state and public waterways and a water
2 database for the state.

3 One of the things we did as part of
4 our planning for our statewide water management plan
5 is we went through and we, as an office, tried to
6 determine where the areas that are that are not a
7 problem right now, but 20, 30 years down the road
8 where could some existing water problems -- water
9 problems may exist.

10 The ones we identified, we identified
11 five sites. Four of them are on this slide. This --
12 I did the same thing. Let's see if I can back up.

13 Okay. This area here is sort of
14 associated with Memphis and the growth that's going
15 on in that area. This is the Jackson metro area and
16 a lot of the growth going on here. This is the Gulf
17 Coast and then Laurel-Hattiesburg.

18 You can barely see this outline here,
19 that's the fourth one on this slide, and that's our
20 agriculture area, the Mississippi-Delta, which uses
21 quite a bit of groundwater, which is not a potable
22 source in that area. It's a very shallow aquifer
23 that is not used for a drinking water supply, but
24 there is some concern just because of the shear
25 volume that they use here.

1 These areas were identified mainly
2 because they are high population growth areas. We
3 have seen a lot of increase in industrial and
4 commercial growth. I know it was addressed this
5 morning about getting water back into the aquifer.
6 One of the things we're doing in this area and this
7 area especially is looking at the development in the
8 recharge area.

9 It really is not important so much
10 where the -- if the development is occurring on what
11 would be considered a confining layer, but
12 development in recharge areas has caused us some
13 concern, right along here especially. We are in
14 discussions. We have a group called MATRAS, which
15 includes Mississippi, Tennessee, and Arkansas, that
16 are studying the development and use right in this
17 area here, because as Memphis grows to the east and
18 this area here is growing to the east, this is a
19 recharge area of that aquifer. So we're addressing a
20 lot of the concerns that are mentioned here today in
21 our part of it. I know it's not quite in the same
22 river basin, but it's the same issues. And then
23 there's other demands in this area that we're
24 seeing -- we're trying to address.

25 The fifth area that's not on this

1 slide is what we're calling areas of limited
2 availability. That other slide, those areas had
3 quite a bit of surface water and groundwater
4 available. It was just a matter of us being able to
5 manage and sort of conserve the way the water is
6 used.

7 These areas here, we will talk about
8 this one down here first, this area here is really
9 sort of an unusual area. There's a good bit of
10 groundwater, but it's all about the color of this
11 right here, it's all brown. It meets all water
12 quality criteria except for color. We think it's
13 some kind of lignite staining, and there's ways to
14 treat that. It's sort of expensive. People just
15 don't like seeing this coming out of the tap, this
16 color. You know, I can imagine that.

17 This northeast area is sort of unique,
18 and this one should have been colored in here, too.
19 There's just not a lot of sands available here.
20 There's not a lot of sands. Where there is sands,
21 because this is very near the outcrop area of most of
22 these aquifers in here, there's not a lot of drawdown
23 space.

24 That means the -- from the top of the
25 water level of the aquifer down to the aquifer itself

1 there's not a lot available to use. There's just not
2 a lot of available groundwater in this area right
3 here.

4 And one of the other things that come
5 along -- dangers that come along with using a real
6 shallow aquifer is the potential for contamination in
7 those aquifers because there's a lot of places that
8 still have septic tanks real shallow that have other
9 things in the shallow water that they -- shallow
10 ground that they have to be careful of.

11 One other thing I wanted to point out,
12 we have only three public water supply systems in the
13 state that use surface water. All the other rural
14 water systems, all the small towns and cities and
15 villages all use groundwater, except for the City of
16 Jackson right here in Hines County, and they use it
17 mainly because they sit on an old volcanic dome and
18 there is just not any sands there. It's sort of
19 unique, a strange little area right here.

20 And Lee County, Tupelo, which is the
21 northeast Mississippi water supply district, is right
22 here. They draw water out of the old Tom Bigbee
23 River. And then there's one, Yellow Creek, which is
24 a very small, very insignificant amount of water. So
25 those are only three public supplies that use any

1 surface water.

2 Sort of to address that northeast part
3 of the Mississippi that's a problem, there have been
4 three water supplies districts proposed. One, as I
5 mentioned, is already existing. That's the northeast
6 Mississippi, which is basically the center part of
7 that area up there.

8 The other two are proposed -- the
9 Tri-County is much further along than the other one,
10 and it's the northern part that joins Tennessee.
11 It's those three countries right here, the Tri-County
12 area. And these other countries here are in the
13 southern part of where you saw those orange -- I
14 mean, the yellow countries outlined, and they're
15 forming what's called the prairie regional, but they
16 have included a sewer component in theirs, which is a
17 little unique and it's been a little tricky.

18 These all three fall within what's
19 called in Mississippi the Tom Bigbee water supply
20 district. These are all sort of divided into thirds
21 here. So Tom Bigbee is working with these smaller
22 groups to form a water supply district simply because
23 they have limits on how much groundwater they can
24 use.

25 As far as TVA and Mississippi, one of

1 the things that we can really, I think, have an
2 advantage is if we can work together with the Corps
3 of Engineers and our Office of Land and Water
4 Resources and TVA to secure the approvals of
5 withdrawals from the TennTom waterway or from the old
6 Tom Bigbee water channel, which is still part of that
7 system in certain parts of the northern part of the
8 Tom Bigbee. Also work with the local water supply
9 districts, those three that we were talking about in
10 the previous slide, and land and water in developing
11 plans for each district, each one of those districts.

12 We require in land and water resources
13 that those three districts supply us with an overall
14 water management plan before we will give them
15 approval for their formation. Before they can
16 complete their articles, they have to supply us with
17 the development on how they are going to use that
18 water, how it's going to be developed.

19 And the last one here is to assist
20 with some of the assessment of possible contamination
21 sites along the Tom Bigbee River and TennTom
22 waterway. As you know, there's a big push for
23 wellhead assessments and for assessment of possible
24 contamination along sites that have withdrawals. A
25 lot of that involves identifying MPDS sites and

1 anything else that could be a potential contamination
2 site along the TennTom River.

3 I think that's my last one. Thank
4 you.

5 MR. BRUCE SHUPP: Thank you. The next
6 speaker is from the State of Tennessee. Alan
7 Leiserson is the legal services director in the
8 Office of General Counsel of the Tennessee Department
9 of Environment and Conservation. He joined the
10 office in '83 and as held a number of positions
11 since, including that of general counsel.

12 He received his BA from the University
13 of Michigan and his law degree from Northeastern
14 University School of Law. He has recently also been
15 placed in charge of policy for the department.

16 Alan.

17 MR. MCMAHAN: Thank you. I appreciate
18 the opportunity to talk to you today. It occurred to
19 me just listening to that introduction that maybe I
20 need to say that I did grow up in Nashville. So I
21 live about less than half a mile away from where I
22 did when I was in grade school and had the
23 opportunity of driving my daughters' friends home
24 from church choir the other night to make that point
25 to them, that I went to that school that they went

1 to. They were real impressed with that. One of
2 those things -- now that I am on the upside of 50 I
3 enjoy reflecting on things that have changed or not
4 changed over the years.

5 I wanted to start off talking a little
6 bit outside the specific area of water issues just
7 for a bit. As you know, we have a new administration
8 in Tennessee. So I don't know if all of you know all
9 of the people. I thought it might be worthwhile to
10 mention a few names to you.

11 In the Governor's office Anna Windrow
12 is the Governor's assistant in charge of policy and
13 legislation. And reporting to Anna is a young man
14 named Drew Kim over policy. And so in my new role
15 over policy for the department, I am going to be
16 interacting a fair amount, I hope, with Anna and
17 Drew, especially as the administration finds time to
18 deal with a few issues besides the state budget
19 situation, which has very much been consuming the
20 Governor's office, and to a large extent for her
21 first two months I would say in office, our
22 commissioner, Betsy Child.

23 And Commissioner Child, I thought, did
24 an amazing job of dealing with having to come up with
25 a 9 percent budget cut for the department, which was

1 what the Governor asked of her in her -- in her
2 second week in office. So she was in a position of
3 having to meet some of her division directors for the
4 first time as they were beginning this discussion of
5 cutting their budgets.

6 She used a process of bringing all the
7 division directors together in a room and setting the
8 ground rules and creating an environment where there
9 was sort of peer pressure to put something on the
10 table. It wasn't done with everybody having to take
11 a 9 percent cut in the state appropriation dollars
12 but seeing what could be cut without cutting the sort
13 of mission critical parts functions of the divisions.

14 So we came through that, I felt, as
15 well -- better than I had thought we would and as
16 well as one, I think, could imagine taking a
17 9 percent cut in state appropriations.

18 The Commissioner has hit on several
19 themes in a number of her talks, and maybe some of
20 you have heard some of these, but I wanted to just
21 mention that she kind of has three sort of core
22 values that she has been talking about inside and
23 outside the department, which are balance
24 accountability and cultural change.

25 And the cultural change item is

1 probably the least important for these discussions,
2 but it has to do with the fact that in terms of
3 getting pollution reduction benefits nowadays we're
4 more and more moving into areas that affect more and
5 more people individually. The area is key to that
6 and issues involving transportation, mobile sources,
7 and so forth.

8 Let me move on to -- the issue of
9 balance is one that, I think, is key to your
10 discussions as I have been listening to them today in
11 terms of obviously balancing all the different
12 demands on the Tennessee River Valley and the
13 different states in the area, but we also think of it
14 in terms of the balance of environmental regulation
15 between economic development and environmental
16 protection. And, of course, we think that those are
17 both goals of our department. It's not an either/or
18 situation.

19 And in terms of the accountability,
20 the department expects to be held accountable to the
21 citizens of the state. And we want to hear from
22 people and find out and have a dialogue and know what
23 the concerns are. We're not promising that we're
24 always going to agree, of course, but we do expect to
25 be held to being answerable and explaining our

1 positions on any issues.

2 Moving into the real issues at hand,
3 over the past couple of years despite the, seems
4 like, unending type of budget situations that we have
5 had, we have passed, as probably most everyone knows,
6 two major pieces of legislation, the Interbasin
7 Transfer Act I guess three years ago, and the Water
8 Resource Information Act last year.

9 The Interbasin Transfer Act set out
10 and defined certain basins on a fairly large scale,
11 ten basins across the State of Tennessee with the
12 idea of requiring a permit, and it does require a
13 permit for transfer between those large basins. It
14 is not geared -- it is transfers primarily that are
15 for the purpose of domestic consumption. In order
16 to -- industrial withdrawals for interbasin transfer
17 purposes, to the extent there are any, are not
18 covered by that Act.

19 One of the reasons the basins were
20 drawn on a fairly large scale was because we also had
21 the ongoing program we called the ARAP program, the
22 Aquatic Resource Alteration Program under the Water
23 Quality Control Act, which regulates those water
24 withdrawals, regardless of whether they are leaving
25 the basin or staying in the basin.

1 If there is such a withdrawal that it
2 has a water quality impact, the -- one of the cases
3 that was litigated over that involved Piney River in
4 withdrawal that was requested by the City of Dickson
5 a few years ago, and we put in that permit --
6 although we issued that permit, it had certain
7 restrictions in terms of how much flow had to be left
8 in the river.

9 My personal view is that that permit
10 had a lot to do with the development of the regional
11 approach in Dickson County that has happened since,
12 and with that, their ability to go to the Cumberland
13 River now.

14 The Water Resource Information Act
15 sort of had two parts. The first part was a
16 requirement that all water withdrawals over 10,000
17 gallons be registered, and these are withdrawals of
18 surface and groundwater.

19 The Interbasin -- going back to the
20 Interbasin Act for a minute, it only applies to
21 groundwater withdrawals. When you're taking the
22 groundwater essentially you might say right next to
23 the river so that it's really -- we didn't want to
24 have a loophole in that law where it only applied to
25 surface water and somebody could sink a well right

1 next to the river and essentially take river water
2 through the well, but it doesn't generally apply to
3 groundwater. The Water Resource Information Act does
4 so that withdrawals of over 10,000 gallons have to be
5 registered.

6 The other part of that Act amended the
7 Water Well Drillers Act and expanded that and updated
8 it. That was probably one of our oldest
9 environmental statutes in Tennessee. I think it was
10 passed in 1963 and was in need a good bit of
11 tweaking, but as well as doing that, we expanded
12 the -- there's not a permit required under that Act,
13 but there's a requirement that we receive reports
14 from well drillers, as well as the fact that the well
15 drillers be licensed. In the amendments what it did
16 was to expand that Act to cover also monitoring wells
17 and geothermal wells.

18 The one consequence of our tight
19 budget situation was that we were not able to do in
20 that Water Resource Information Act a statewide
21 monitoring program, such as has just been described
22 by the other speakers, and some fee components, which
23 we're going to be supplying the revenue for that
24 we're also deleted. So that piece did not happen in
25 that legislation. So we are -- it addressed some

1 concerns in terms of our ability to document water
2 use in Tennessee but not all of it.

3 Our view in terms of -- I have gotten
4 the sense occasionally that there is some concern
5 that Tennessee's passage of the Interbasin Transfer
6 Act was a shot being fired in some sort of interstate
7 water wars. We didn't view it that way at all.
8 We're interested in working with other states, and we
9 don't think the south is well served by water wars.
10 Obviously, you know, in terms of industrial
11 investment in the south people are not looking for
12 uncertain situations such as that might -- those
13 situations might lead to.

14 And I should say that since the
15 Interbasin Transfer Act was passed, we have permitted
16 some interstate interbasin transfers, one going into
17 Kentucky and one goes from the Cumberland River into
18 the Barron River Basin, and one withdrawal from the
19 Tennessee River by Eastside utility district going
20 down into North Georgia.

21 So in our view that law shouldn't be
22 understood as, you know, drawing lines that are
23 congruent with the state lines in terms of the
24 concern. It obviously applies within the state as
25 well as to interbasin transfers that happen to go out

1 of state.

2 We are encouraging where we can the
3 regionalization Compact. I mentioned Dickson County.
4 It seems like there are a lot of situations where
5 utilities in an area working together can better meet
6 all the needs of the community when they are not
7 competing among themselves and wanting to have a
8 water supply for the basis of that competition as
9 opposed to the basis of serving the community. That
10 concept was mentioned in the Water Resource
11 Information Act, but it's not anything that, you
12 know, there is a mandate to do, it's just encouraged.

13 Thank you very much.

14 MR. BRUCE SHUPP: Thank you. The
15 final speaker is Joe Loggins. Joe is a lifelong
16 resident of Tennessee. He's a -- got his Bachelor's
17 and Master's degrees from University of Tennessee in
18 electrical engineering. He was with Tennessee --
19 TVA's Office of Power for ten years, '59 to '69,
20 Arnold Engineering Development Center from '69 to
21 '85, and he is now with the Tullahoma Utilities Board
22 as general manager.

23 Joe.

24 MR. JOE LOGGINS: The Tullahoma
25 Utilities Board distributes electric power, water,

1 and provides wastewater service to the City of
2 Tullahoma. For those of you that don't know where
3 Tullahoma is, it can probably most easily be
4 described as saying it's about 10 miles from
5 Lynchburg, Tennessee. Most people know where Jack
6 lives.

7 The subject that I am going to talk
8 about is activity on the upper reaches of the Duck
9 River, and I will step away from the microphone
10 momentarily and point that out.

11 For about 30 years Tullahoma has
12 participated in a regional water supply resource
13 development agency, actually two, two groups like
14 that. The Duck River heads at Manchester, which is
15 about 10 miles north of Tullahoma, and flows, as you
16 see on the map there, southwesterly and flows into
17 the Tennessee River about halfway between the Alabama
18 and the Kentucky lines.

19 On the upper reaches of the river the
20 flow is very, very low in dry weather. About -- in
21 the early '60s forward thinking people with a concern
22 for the water supply got together and were able to
23 charter through the state the agency known as the
24 Duck River Agency. Its purpose is primarily to
25 develop water supply for the communities on the upper

1 reaches of the Duck River. It is also chartered to
2 do economic development, but it has not been
3 pre-occupied with that activity.

4 Following the chartering in 1965,
5 conversations with TVA and other interested parties
6 resulted in the concept of a two dam, two empanelment
7 water supply to be produced on the upper reaches of
8 the Duck River. The Normandy Dam, which was actually
9 about 15 miles from the very beginning of the Duck
10 River and then the Columbia Dam down near Columbia,
11 Tennessee, which is about, I guess, 50 miles -- river
12 miles downstream.

13 The Normandy Dam construction by TVA
14 was begun in 1972 and completed in 1975. The
15 Columbia Dam was begun in 1973. The construction was
16 halted in 1988, I believe it was because of the
17 environmental problems and the structure -- the
18 concrete structure, which was about 80 percent
19 completed, was torn down in 1999.

20 With that event the master plan for
21 the water supply to the upper reaches of the Duck
22 River went to pot. TVA in -- I guess in closure of
23 this situation did a rather thorough environmental
24 impact study. To me that was a unique study. To me
25 when I think of environmental impact studies, I think

1 about what's going to happen to the little plants and
2 animals, the small creatures. To me this
3 environmental impact study dealt with what's going to
4 happen with the big ones, us. What are we going to
5 do for water?

6 The study involved a lot of people.
7 All of the entities in the area that were felt to
8 have a stakehold in the issue were invited to come
9 and participate in the meetings wherein a facilitator
10 asked for ideas on how the water supply for the area
11 might be met.

12 As I remember, there were about 30
13 ideas that were brought up. These ideas were taken
14 by TVA and studied and massaged and evaluated and
15 narrowed down to five ideas that seemed to be
16 reasonable things that might be done. Actually, four
17 of them were reasonable.

18 The environmental impact study
19 identified impounding Fountain Creek, which was a
20 creek that water flowed into the Duck River and it
21 would have been a part of the Columbia impoundment.
22 It would be a much, much smaller lake, much smaller.
23 Normandy Lake is a small like, about 4,000 acres, and
24 Fountain Creek would be much smaller than that.

25 Another idea was to raise the Normandy

1 Dam 5 feet. A third idea was to build a pumping
2 station on the Tims Ford Lake, which is the blue
3 impoundment that you see on the map there just south
4 of the Normandy impoundment, to build a pumping
5 station there and a large waterline, and in time of
6 need pump water from Tims Ford into the Duck River
7 along about Shelbyville, Tennessee.

8 Another idea was to go about 15 miles
9 below Columbia at a point to where some other streams
10 had flown -- already flown into the river, a point
11 below where it's wastewater affluent into the river,
12 build a pumping station and pump water back above
13 Columbia for Columbia's use.

14 The fifth idea that was identified in
15 the environmental impact statement was to do nothing.
16 To me that is not an option. The participants in the
17 Duck River Agency are the local governments and
18 counties that involve five water systems, Manchester,
19 Tullahoma, Shelbyville, Lewisburg, and Columbia. The
20 members of the Duck River Agency, the board members,
21 are made up of representatives from the community,
22 people just at large, and also the -- I believe the
23 mayors of the cities and the county executives.
24 Those were the people who have made the decisions
25 over the years of things to do directing the

1 executive director and the staff.

2 That was changed, I guess, about 1998
3 or so. There was some things that went on that, I
4 guess, were not just exactly as they should have
5 been, and it was revamped and a lot of the board was
6 reappointed by the Governor and a new executive
7 director hired. This person felt rightly that the
8 managers of the water systems ought to be brought in
9 so that there could be some technical knowledge
10 giving advice to the directors.

11 At that time the Duck River Agency
12 technical advisory committee was created. We have
13 met quarterly since that time. It has been a very,
14 very, in my opinion, productive thing where people
15 that have worked together, some of us in the same
16 offices for years, and it has been of great benefit.

17 Another thing that was started a
18 little bit later, realizing that whatever was done to
19 address the water supply problem was probably going
20 to encounter the same obstacles that the Columbia Dam
21 did, there was also a publication of the fact that
22 the Duck River was one of the most diverse rivers in
23 the nation as far as aquatic life. I think that
24 really impressed upon some of us whose primary
25 interest may have been water prior to that, that

1 there's really something more than that that we ought
2 to be taking into account.

3 So a -- an advisory council was
4 created, here again, of every stakeholder that could
5 be identified that might want to be a stakeholder.
6 Tennessee Department of Environment and Conservation,
7 the Corps of Engineers, Nature Conservancy, National
8 Geographic Survey, Department of Agriculture, Game
9 and Fish Commission, just on and on and on.

10 These people, along with the Gray Tech
11 members, have been meeting on a regular basis working
12 very cooperatively. To me it has just been a great
13 venture to participate with people of these diverse
14 interest and see how they work together.

15 Some of the things that have happened
16 in this time -- in recent times is everyone seemed to
17 realize that a critical thing to the future was to
18 know just as precise as we could what the real water
19 situation in the Duck River was going to be with just
20 this small, small impoundment less than, I guess,
21 about a fourth of that which 30 years ago had been
22 anticipated.

23 What could the river supply?

24 So the Nature Conservancy was able
25 to -- through them make a grant available that funded

1 modeling of the river, of the upper reaches of the
2 river. It was done by a firm named Hydrologics out
3 of Raleigh, North Carolina, I believe it was. The
4 model was produced, and then the agency funded some
5 more money to have them study -- take the model and
6 study the upper regions in-depth and produce a
7 report.

8 And to most everyone's surprise, the
9 report concluded that with careful management of the
10 water that the needs of the area could be met for 50
11 years. That initial revelation was met with a lot of
12 skepticism, but it was repeated over and over again
13 with different scenarios studying the historical
14 events over the years and the what if's, and I think
15 everyone finally came around to the fact that this is
16 for real, that this will supply the needs.

17 We immediately came to realize that,
18 well, the quantity may be there, but there are
19 quality issues with one small lake that is
20 essentially a pond because in the dry summer there's
21 hardly any water coming into this and it is having to
22 release water to supply the needs downstream.

23 There are two of us, Manchester and
24 Tullahoma, that have a joint water treatment plant
25 that get water right out of the lake. There are

1 commitments to allow water to go on downstream to
2 meet minimum flows for wastewater dissemination at
3 Shelbyville and downstream.

4 So last summer really demonstrated the
5 problem when we had a hot, dry summer and the
6 releases of the water had to be made and the lake was
7 pulled down. You have got a layer of water in the
8 bottom of the lake that is very, very poor quality
9 because of oxygen deficiency and manganese and
10 whatever else is down there. Then you have got this
11 upper layer of water up here that is warm and has the
12 biological growth in it. And so the water treatment
13 plant was unable to find the zone of water in there
14 that would produce acceptable.

15 And we had lots of complaints of a
16 taste last summer, which reemphasized what we thought
17 could happen in those bad conditions. So we're
18 dwelling on water quality.

19 We have several things going that are
20 being funded now. There is a study that -- a
21 \$250,000 or so study of the potential pathogens in
22 the water. There's also a study that, I guess, Susan
23 is probably going to be involved in, the USGS, to
24 analyze the groundwater and the surface water along
25 the river between Normandy Lake and Columbia to see

1 what happens to the water. Is there more water
2 coming in? Is there water leaving?

3 So we're dwelling on water quality
4 now. We're looking to TVA for support of that, not
5 any big bucks, but we have asked them to assist us in
6 providing some models that they already have in place
7 of water quality. And we feel like that with that
8 information we will be able to address problems as
9 they occur.

10 This event that we've experienced
11 recently, the last two and three days, emphasizes the
12 need for this model. I received a call this morning
13 saying the plant had been shut down, that with the
14 water flows that we have had that there's mud that's
15 come into the basin and it's gotten into the plant
16 that the plant is not used to treating and it is
17 going to shut down until they can clean that up and
18 straighten that out.

19 Had we had a model where we could
20 model those various events that might occur, the dry
21 weather events, these events, we could avoid those
22 situations. So we have got a lot of work to do.
23 It's really exciting working with people. I think we
24 may be setting an example of how regional agencies
25 can work together and do things, realizing that the

1 best laid plans of mice and men often go astray.

2 MR. BRUCE SHUPP: If the panel could
3 get up to the chairs, please. We have got 30 minutes
4 to ask questions to our state and local panel.
5 Remember, use your sign if you want to be recognized
6 for questions.

7 Jimmy.

8 MR. JIMMY BARNETT: Tom, I have a
9 question. Where does the City of Burnsville get its
10 water, from the river or from wells?

11 MR. TOM LITTLEPAGE: For me?

12 MR. JIMMY BARNETT: Yes.

13 MR. TOM LITTLEPAGE: What was the
14 question again? I'm sorry.

15 MR. JIMMY BARNETT: The City of
16 Burnsville, Mississippi, up there in the northeast
17 corner right there close to Alabama.

18 MR. DAVID HARDIN: Yeah, Burnsville
19 still has groundwater wells. They are not very good.
20 Some of the maximum capacity of some of those wells
21 in the northeast is 40 gallons per minute, which is
22 not a very good well. They are very shallow. I
23 believe Burnsville, if I am thinking about the right
24 one, still has groundwater.

25 MR. JIMMY BARNETT: Okay. Excuse me,

1 Tom, I was thinking about two questions. The other
2 one was really for you. The question I have for you
3 is: How much do you think that Alabama talks to
4 Tennessee or Mississippi and y'all talk to each other
5 about commonality in regulations? I'm thinking
6 particularly of Tennessee since so much of the river
7 is shared between Tennessee and Alabama.

8 MR. TOM LITTLEPAGE: I think
9 historically we haven't done that a lot, but within
10 the last year or two years we have seen more than I
11 had ever seen before that. I think it's because
12 there's a commonality of the problems associated. I
13 think there's a respect for state sovereignty and
14 what that means.

15 Each of the states has a different
16 constituency and different legal approaches to how
17 they use and manage water, but we're seeing such a
18 common aspect of problems and how we can work
19 together to try to address them, trying to learn from
20 each other, that I think you're going to see more and
21 more of that.

22 And it's becoming focused within
23 political roundtables, southeastern policy groups. I
24 think you're going to see that take more and more of
25 a focus. So I'm very optimistic that the kind of

1 dialogues that we see here and in other groups are
2 going to continue in the future.

3 MR. BRUCE SHUPP: Julie and then Ed.

4 MS. JULIE HARDIN: Yes. This is for
5 Joe. Joe, was the Columbia Duck River Dam, was that
6 environmental rumble about the mussels?

7 MR. WHITE: Yes.

8 MS. JULIE HARDIN: Could you talk a
9 little bit about that and what has happened there?

10 MR. JOE LOGGINS: Well, I don't know a
11 lot of the details. What I do know is that there was
12 a mussel, I think it was referred to as the pearly
13 wing mussel that was located at a location or two
14 that the impoundment would cover, and as I understand
15 it, that was the main issue that killed the dam.

16 I know that there were a lot of people
17 problem -- probably regional people that had some
18 opposition to the dam from the very beginning just
19 because it took their lands, and I think that
20 probably entered into the picture some, too. They
21 were looking for lots of things.

22 MS. JULIE HARDIN: So in a way this
23 kind of mimics or mirrors what happened with the
24 snail darter back in '79, right?

25 MR. WHITE: Yes.

1 MS. JULIE HARDIN: Yeah. Yeah. Thank
2 you.

3 MR. BRUCE SHUPP: Ed and then Miles.

4 MR. ED WILLIAMS: Are you seeing any
5 impact from these retail water users that are using
6 bottled water and taking water out and selling it on
7 a retail basis, unlike Tennessee American that's, you
8 know, doing it for a municipal supply system?

9 MR. JOE LOGGINS: I see a lot of water
10 on the store counters and a lot of people sipping on
11 it, but I don't see any impact on the water. The
12 price differential is so great, and it's kind of a
13 novelty to do every once in a while, but it's not
14 going to use large quantities.

15 MR. ED WILLIAMS: What about the
16 states? That's the only sector we haven't heard much
17 about is the retail.

18 MR. TOM LITTLEPAGE: And your question
19 is relative to municipal selling or just the selling
20 of bottled water?

21 MR. ED WILLIAMS: Just is there any
22 impact from the retail withdrawal of water that goes
23 into bottles?

24 Johnson City is selling to a bottling
25 company. I know that there's a bottling company that

1 sells to Delta down near Cleveland. It's just one of
2 the few things we haven't heard anything about.
3 Maybe the impact is minimal. Obviously people is
4 taking water out and selling it from the Tennessee
5 River system and I am just curious.

6 MR. DAVID HARDIN: In Mississippi the
7 majority -- and I am not familiar with any that is
8 taking surface water and bottling it. Most of it
9 is -- they want to use spring water. So they go find
10 somewhere that that water at some point where it's
11 coming out of the ground and they may go drill a
12 deeper well somewhere else, but they say it's the
13 same aquifer, so we're, in a sense, selling you
14 spring water.

15 I'm not aware of any that's taken
16 any -- I know there's not any out of the TennTom
17 that's selling bottled water. The vast majority of
18 them is the state of Mississippi have their own well
19 that we permit that sells -- Kentwood has some.
20 There's six or eight or ten of them in the State of
21 Mississippi that uses groundwater for that purpose.

22 MR. ED WILLIAMS: Or that magical
23 formula that happens down in Lynchburg that turns
24 that water is brown that so many people in so many
25 areas that pays so much money for, is there any

1 regulation or costs for that? That's you, Alan.

2 Jack Daniels.

3 MR. MCMAHAN: What was the question?

4 MR. ED WILLIAMS: Are they paying
5 anything or permitted for taking out that groundwater
6 or spring water? It is, in essence, surface water.

7 MR. ALAN LEISERSON: To my knowledge,
8 they are not.

9 MR. ED WILLIAMS: No permits?

10 MR. ALAN LEISERSON: They are not
11 paying anything. I am aware, in your prior question,
12 of a few facilities around the state that are
13 bottling water, but I'm not aware of any
14 documentation of the impact.

15 MR. ED WILLIAMS: Are they permitted?

16 MR. ALAN LEISERSON: No.

17 MR. TOM LITTLEPAGE: I know the City
18 of Mobile is now selling water under their label. I
19 forgot exactly what they are calling it. They are
20 calling it something fancy. People are buying it.
21 It's a little cheaper than the normal brands that you
22 see there.

23 Again, from a public policy
24 standpoint, I don't think those quantities have been
25 significant enough to where they warrant any issues,

1 but as competition becomes tighter and as we look
2 at -- you know, I think what's embodied and probably
3 in common among the states here is domestic use for
4 public health and safety is the No. 1 priority use of
5 water.

6 What you may see in the future is just
7 because a municipality is using it, there may be some
8 delineation of what is actually water for public
9 health and safety or public use versus an industry
10 buying from that municipality or for selling like
11 bottled water or something that's not directly public
12 use per se. So you may see some delineation of that.

13 MR. ALAN LEISERSON: And the one thing
14 that Susan showed this morning about the differences
15 in water use for industrial and power plants, if you
16 remember those percentages, how small the public
17 supply was, it's pretty much that way. I know it is
18 in Mississippi anyway. The vast majority of it is
19 used for agricultural or industrial.

20 Public supply is still our No. 1
21 priority. It's not the No. 1 user. So, therefore,
22 if you take a small percentage of that for bottled
23 water, it's really hard to -- would be hard to even
24 measure how small that amount would be.

25 MR. BRUCE SHUPP: Okay. We've got

1 Miles, then Paul, then Steve.

2 MS. MILES MENNELL: Well, speaking of
3 selling and I am hearing -- I think what I am hearing
4 is that in each of the states there are different
5 policies for the purchase or non-purchase of the
6 water.

7 In Tennessee, for example, I think
8 there are only a couple of industries that are
9 involved in any kind of payment arrangement. And I
10 just want you to, you know, clarify this for me.
11 There are only a couple of industries, as I
12 understand it, who pay for the use of the water they
13 take out of the river, but there's no consistent
14 policy statewide.

15 I just wonder what the opportunities
16 are for addressing that within Tennessee but also on
17 a regional basis so that that becomes a resource that
18 the monies can come back in and benefit all of the
19 river users. And I don't know if I have articulated
20 that right, but right now it's free.

21 MR. ALAN LEISERSON: Right now it is.
22 Right now it is. There's not a payment to be made to
23 the state for groundwater or surface withdrawals.
24 There are some -- under the Interbasin Transfer Act
25 there is a permit fee but not a fee for the -- you

1 know, paying for the water essentially.

2 MR. DAVID HARDIN: We do have a
3 permitting fee also. It's so insignificant it
4 doesn't matter. We have tried in the last two
5 sessions to get legislation introduced that would
6 allow us to do one of two things, either charge a
7 higher fee based on usage and also based on the time
8 it takes to process that permit, meaning that a small
9 water association is a permit that's very easy to
10 process versus an International Paper or a Nissan.
11 Those permits are very difficult, very long-term to
12 process.

13 And so to have a fee based on the
14 difficulty or the complications involved in that
15 permit, but also based on their volume that they use,
16 and we have yet to come out of a subcommittee. We
17 did -- we will probably get the double votes we did
18 last year, and we only got two last year, so we got
19 four this year. At this rate we will get there in
20 about ten years.

21 MR. JOE LOGGINS: If I might add,
22 excuse me, the participants in the Duck River Agency
23 pay 5 cents per 1,000 gallons of water sold to
24 customers as a contract agreement between the agency
25 and the utility systems and TVA as partial funding of

1 the cost of construction of the dams and the agency's
2 operations. Most of those funds are being held now
3 by the State of Tennessee for a water resource
4 project down the road somewhere.

5 MR. TOM LITTLEPAGE: Yeah, I would say
6 Alabama is the same. I think the whole aspect of
7 cost, you know, the perspective of water is a
8 property right and you should not have to pay for it
9 as you can see across the southeast, but it is going
10 to slowly change but we ain't there yet.

11 MR. BRUCE SHUPP: Paul, then Steve,
12 then Lee.

13 DR. PAUL TEAGUE: This discussion
14 feeds right into not my question but my comment.
15 Today at our table at lunch it was pointed out that a
16 pint of water costs more than a gallon of gasoline
17 and we complain about gasoline.

18 DR. STEPHEN SMITH: To me that's an
19 energy policy question of this country.

20 I had a question, and I'm not sure
21 this is exactly correct, but I understand that in
22 some states, and I think primarily in Georgia, there
23 are large industrial customers that have been
24 permitted to get vast quantities of water for
25 economic slowdown, efficiency gains or whatever.

1 They still control that permit for,
2 say, a million gallons or something, but they may
3 only be using half of it. They are actually claiming
4 that that other half is still legally theirs and they
5 are still trying to go out on the market and sell
6 that even though they are not using it as if somehow
7 or another they own that water.

8 I am just interested to hear the
9 perspectives of folks about, you know, how often a
10 permit is reviewed. You know, do you have industry
11 going out and overshooting their needs and then
12 turning around and trying to profit?

13 As the water shortages become more
14 intense, it seems like there's the opportunity for
15 sort of manipulation based on I was here first, you
16 know, manipulation based on, you know, anticipating
17 down the line and trying to tie up the water
18 resources and then try to profit from that.

19 Can you address that a little bit?

20 MR. DAVID HARDIN: Our permits are
21 good for ten years. They are required at the end of
22 that ten-year period to reapply for it. Anytime
23 within that ten-year period if we find out that there
24 becomes a water supply issue in there, we can modify
25 it or it can be modified, revoked in any manner

1 within that ten-year period.

2 The ten-year period requires it to go
3 out to public notice every ten years, but we also
4 only permit them for their actual use, plus about 20
5 percent, just sort of to have a little leeway in
6 there. They are required to file a water use with us
7 every year. So we check that water use against what
8 their actual permits are.

9 And we have had industries that come
10 in and requests, we're going to do an expansion in
11 five years and we want to go ahead and up our permit.
12 I said, well, in five years when you finish that
13 project and you need the water, you come back to me
14 then because anytime -- I can modify it up or we can
15 modify it down during that ten-year period.
16 Depending on how much, we may have to go back to
17 public notice with it.

18 We monitor very closely the amount of
19 water they use, the -- and how it relates to our
20 permit because we want that permit to be a realistic
21 number of the water use in the State of Mississippi
22 and not a -- somebody else's right, because
23 ultimately the water belongs to the citizens of the
24 state, and we, as the state, are responsible for
25 management of that water resource.

1 DR. STEPHEN SMITH: So you would not
2 recognize an industry?

3 MR. DAVID HARDIN: They could not sell
4 that water right to anybody. Any changes to that
5 permit or any modifications to that permit require it
6 to come back through us for approval. So you cannot
7 sell that water right to anybody else, the permit
8 itself.

9 Now, you can sell water because that's
10 what water associations do all the time. They pump a
11 certain amount of water and they sell it to their
12 customers, but the owner of that permit cannot be
13 changed without modification which requires our
14 approval.

15 MR. ALAN LEISERSON: In the Interbasin
16 Transfer Act those permits are good for five years
17 and have very similar provisions as far as being
18 modifiable within that five-year term as well as at
19 the end of that five-year term having language about
20 it not creating property rights and so on.

21 And, of course, in terms of our ARAP
22 permits under the Water Quality Act we have similar
23 provisions under that Act of authority to modify for
24 a change of circumstance, although it's more general
25 terminology as opposed to the Interbasin language

1 about water shortages or water quality concerns.

2 I think it would still cover it and
3 stop that sort of thing. And similarly, any transfer
4 of either of those permits would have to come through
5 us.

6 I have heard something from Georgia,
7 and I don't know the details about it, in terms of
8 recent legislation that --

9 MR. DAVID HARDIN: It didn't get
10 passed.

11 DR. STEPHEN SMITH: It didn't get
12 passed.

13 MR. ALAN LEISERSON: At any rate, I
14 guess from my personal standpoint I think one of the
15 things that we have going for us in the south and the
16 east, as opposed to the west, I think, is staying
17 away from the idea of ownership rights because I
18 think when you get those established, one of the
19 effects of that is that those people feel like they
20 don't have to talk to anybody else or work with
21 anybody else. So the idea that we're all in it
22 together, sharing a resource, I think, in the
23 long-term, you know, is going to benefit us.

24 DR. STEPHEN SMITH: But you are aware
25 of attempts to try to own the rights to some water

1 permitting? I mean, has that come up in any of the
2 states?

3 MR. ALAN LEISERSON: I haven't seen
4 that in Tennessee.

5 MR. TOM LITTLEPAGE: I can assure you
6 that there's a lot of states looking, especially in
7 the east and the south, with what's going on in
8 Georgia and other states and this whole ownership
9 issue, we're watching that very carefully.

10 The only other thing I would add here
11 is Alabama doesn't have a permitting system, we have
12 what we call a water registration system, but we
13 also, as part of that process, require annual
14 reporting of actual usage. So it allows us to
15 contrast what they're using versus what they said
16 they would use in the original submittal.

17 MR. ALAN LEISERSON: And that just
18 reminded me too, in terms of our recent water
19 withdrawal legislation that also has an annual
20 reporting provision.

21 One of the little discussions that's
22 gone on during the rule-making process there also has
23 the -- we have addressed the issue of how averaging
24 works if somebody does withdrawal every day, and our
25 position on that was that you can average on those

1 days that you're withdrawing but you can't average in
2 using the days you don't withdraw to pull your
3 average.

4 MR. BRUCE SHUPP: Okay. Lee, then
5 Phil, then Ed.

6 MR. LEE BAKER: Alan, I think I
7 understood you to say that there were two interbasin
8 transfer permits from Tennessee. What kind of
9 quantity are we talking about? Is that an average of
10 so many gallons per day? How is that phrased or how
11 much water is being transferred?

12 MR. ALAN LEISERSON: Under the
13 Interbasin Transfer Act there's not a threshold, not
14 a quantity threshold. All that has to happen is that
15 the water be transferred from one basin to another
16 for the purpose of domestic use.

17 And we get into issues of transfer
18 from, you know, one system to another system. The
19 law specifically addressed that in terms of, you
20 know, that the withdrawing system that transfers to
21 another system where it goes out of basin has to get
22 that permit.

23 We did do some general permits to
24 address issues like the requirement under the Safe
25 Drinking Water Act program for utilities to have

1 interconnections for emergency purposes where that
2 could affect an interbasin transfer, but it's not
3 happening except in those emergency situations.

4 The other one that I think you're
5 referring to is what I've called the ARAP permit, the
6 Aquatic Resource Alteration permit under the Water
7 Quality Act, and again, there's not a specific
8 numeric threshold for that.

9 The concern there is if there's a
10 proposed withdrawal is such that it is likely to
11 create a water quality concern, so it's -- there's
12 not a number.

13 MR. LEE BAKER: There's no quantity
14 threshold? There's a specific defined use in the two
15 cases that we have, is that what you're saying?

16 MR. ALAN LEISERSON: In the Interbasin
17 Transfer Act it applies when it's a withdrawal and an
18 interbasin transfer for the purpose of domestic
19 consumption.

20 MR. LEE BAKER: Okay.

21 MR. ALAN LEISERSON: In the ARAP it
22 doesn't matter what the withdrawal -- the purpose of
23 the withdrawal is.

24 DR. KATE JACKSON: I think actually
25 Lee was asking the question, you mentioned in your

1 presentation two specific interbasin transfer permits
2 that Tennessee has approved. I think he was asking
3 specifics about those permits.

4 MR. ALAN LEISERSON: Oh, I'm sorry. I
5 misunderstood.

6 MR. LEE BAKER: I obviously didn't
7 state it well. One to Kentucky and one to Georgia?

8 MR. ALAN LEISERSON: Yes.

9 MR. LEE BAKER: Again, is there a
10 quantity limitation on either of those?

11 MR. ALAN LEISERSON: There is. I
12 can't remember what the amounts are. It's 5 million
13 per -- yeah, that's what I was thinking that number
14 was. And the other one I can't remember, the one
15 going into Kentucky from the Cumberland River, it has
16 a stated maximum on it.

17 MR. LEE BAKER: Five MGD in Georgia
18 and then something maybe similar to that in Kentucky?

19 MR. ALAN LEISERSON: It's roughly
20 similar to that, I believe, yes. And again, it does
21 have the provisions that I mentioned a minute ago for
22 modification.

23 MR. LEE BAKER: Thank you.

24 MR. BRUCE SHUPP: Phil.

25 MR. PHIL COMER: My question is for

1 Kate. Does TVA charge municipalities -- you have
2 what, 350 municipalities that take water. Does TVA
3 charge -- I have two questions.

4 Does TVA charge for that water to
5 municipalities?

6 No. 2, how do you arrive at the
7 \$985,000 you charge Tennessee Eastman each year, is
8 that on quantity?

9 DR. KATE JACKSON: The answer to your
10 first question is no, we have no requirement that we
11 charge for withdrawals from the system. The purposes
12 under the Act, as you-all know, are flood control,
13 navigation, and hydropower. So the basis on which we
14 do the calculation for charging Tennessee Eastman is
15 based on -- they have a flow requirement. So it's
16 based on hydropower, lost hydropower.

17 MR. PHIL COMER: Lost hydropower?

18 DR. KATE JACKSON: I think. Yes,
19 Janet is nodding her head.

20 MR. BRUCE SHUPP: Ed.

21 MR. ED WILLIAMS: Again, what would
22 you-all suggest in terms of the future? I mean, what
23 do you see in the future with respect to either fees
24 or user permits?

25 I know you're moving slowly in

1 Mississippi, but do you see what's the trend, what
2 should we be thinking about in terms of the future
3 use?

4 The second part of that question, I'm
5 not hearing any distinction between consumption use
6 and withdrawal other than Susan this morning.
7 Shouldn't there be a distinction?

8 MR. DAVID HARDIN: I may have to ask
9 you to clarify that last part. Let me try to address
10 the first part on the fees. We will probably have a
11 fee bill in the State of Mississippi in the next five
12 years. Part of it will be because of budget to make
13 sure we can fund the agency. I will be quite honest
14 with you, it's gotten to the point where -- this is
15 an election year, so I won't go any further on that.

16 But probably within the next few years
17 there will be some type of fee bill. Now, what that
18 looks like, I am sure it won't look like what we
19 would like it to look like because we would like it
20 for our commission that oversees -- commission on
21 environmental quality which oversees the Department
22 of Environmental Quality, they are appointed by the
23 Governor, we would rather they set the fee. It will
24 probably be set by the legislation in the Act itself.
25 I don't know that.

1 I would imagine we will have some type
2 of fee, whether it be a usage fee or it will be a
3 increase in the permit fee, I'm not sure which one it
4 will be, but they sort of act as the same in
5 Mississippi because we can up the permit fee sort of
6 based on what they use. So it's a trade-off there.
7 That would be our trend. I don't know about
8 everybody's else's here, but I do see that headed
9 that -- sort of headed that way. I didn't understand
10 the last part.

11 MR. ED WILLIAMS: The last part was
12 the consumptive use versus just the mere withdrawal
13 and putting it back in the river. I know there is a
14 difference in your accounting for it.

15 MR. TOM LITTLEPAGE: Officially I
16 can't make any position because we have never taken a
17 position on that. I know that in the enabling
18 legislation of our office there was a question of
19 using it as a fee-based approach, and the legislature
20 said, if you do that, you will kill it.

21 I think there's a general
22 recognition -- that was 13 years ago, and I don't
23 know if the attitude has changed significantly. I
24 think it's better. I mean, if you read the paper now
25 where here in Tennessee it's a \$630 million deficit,

1 we're at 500 million, Georgia's at a billion. I
2 don't know.

3 Given the importance I think -- and
4 there is a general widespread recognition that I see
5 among the Governors and the senior policy folks of
6 how important water resources and management is to
7 economic development and future growth of the states.
8 Given that, that they understand that if we don't
9 manage this resource we're going to end up killing
10 ourselves for future growth and developments in the
11 states, I think there has to be some recognition on
12 how you get there, how you achieve having the
13 capability to manage and understand and have the
14 technical support and data to manage it, how do you
15 do that? Who pays that price?

16 Do you continue to fund it out of the
17 general fund or do you do it as a self-sustaining
18 through some fee-based approach process?

19 Personally I think a fee-based
20 approach makes sense, and hopefully something like
21 that will come along because I think the pressures on
22 the general fund are going to do nothing but
23 increase.

24 MR. ALAN LEISERSON: On our 10,000
25 gallon withdrawal legislation, that's just a

1 registration, not a permit. And the idea behind it
2 is to just gather the information and have the
3 ability to do the documentation. And the consumptive
4 use is, you know, part of the information that gets
5 gathered in that process. In the interbasin context
6 there is a provision for considering what's returned
7 to the river basin that the withdrawal occurs to.

8 One other unfinished item that is in
9 relative near nature as far as Tennessee's situation
10 is that when that -- I didn't mention when that Water
11 Resources Information Act was passed last year, to
12 get it through, a compromise was made that there was
13 an exemption for agriculture.

14 And in this past session the informal
15 agreement had been that agriculture would come back
16 with something to address it because what we had been
17 saying to the agricultural interest was this really
18 isn't a regulatory program, this is gathering of
19 information for the purpose of being able to document
20 what the use in Tennessee is, and you have an
21 interest in that being documented so it can be
22 defended if there is a need to defend it in the
23 future.

24 Some people in the agricultural
25 community understood that, but there's still this

1 very deep fear of creeping regulation in the
2 agricultural community.

3 What happened in this recent session
4 was that a bill was brought forward that didn't
5 require agricultural withdrawals to register but
6 provided for the Department of Agriculture to come up
7 with a system working with NRCS to document that
8 usage.

9 Unfortunately, again, in our physical
10 environment, the Department of Agriculture said it
11 would cost them money to do that function, and that
12 bill is not going to make it through the legislature
13 as a result of that, but I expect that issue to come
14 back again.

15 MR. DAVID HARDIN: On the consumptive
16 and non-consumptive use, we don't -- when we review a
17 surface water permit, it really doesn't matter to us
18 whether it's consumptive or non-consumptive, we treat
19 it the same.

20 Now, when it does become important is
21 when -- like in '99 and 2000 in Mississippi when we
22 were in drought conditions, we do have a minimum flow
23 requirement that has to be maintained at all times.

24 And if you are a consumptive user,
25 which we had a lot of them, that we -- we had almost

1 65 that we cut off from withdrawing any surface water
2 because they were consumptive users of water and
3 their -- that stream or river, or whatever it was,
4 was below the minimum flow requirement that we had
5 for that stream.

6 Now, if you were a non-consumptive
7 user, which meant you put back essentially the same
8 amount of water you took out, then they got to
9 continue operating during the drought conditions
10 because if they took out a million gallons, they put
11 back essentially a million gallons. They had to
12 apply for an exemption under their permit, but once
13 they applied for that exemption they were granted
14 because they made -- they didn't -- as long as the
15 water quality -- there was no change in water
16 quality.

17 The Delta and all of that factors into
18 that, but we had several power plants and several
19 other industries that got that exemption because they
20 put back in essentially the same amount of water they
21 took out. They were the non-consumptive users.
22 That's the only time it really comes into play in
23 Mississippi is during low flood conditions.

24 MR. TOM LITTLEPAGE: I would also add
25 a point just to what Alan said, and I am not here to

1 speak for Georgia obviously, but as part of these
2 negotiations we in Alabama have become very familiar
3 with what Georgia does.

4 One of the things -- although the
5 Permit Trading Bill failed this last session in
6 Georgia, and a lot of us were watching that, what did
7 pass was metering bill for Georgia agricultural. In
8 the past Georgia permitted ag based on acreage. So
9 there was no idea of what the usage of that was.

10 To Harold Reheis' (phonetic) credit
11 over there, he was able to -- and I think they are
12 going to recoup funding for that metering through
13 fees with those farmers. He got the ag community
14 behind it. So Georgia is going to start being able
15 to monitor actual agriculture usage as a result of
16 the deal during the session.

17 MS. SUSAN HUTSON: David, how do you
18 handle that surface situation with public supplies?
19 I guess you wouldn't because you would just have
20 Jackson and those large bodies of water, so that
21 would be --

22 DR. PAUL TEAGUE: Repeat your
23 question, please.

24 MS. SUSAN HUTSON: Well, I answered my
25 own question. Essentially I was asking how that low

1 flow would impact surface water withdrawals thinking
2 in a Tennessee context, but you are all groundwater,
3 except for Jackson and Tupelo. So that's not an
4 issue and you don't have to deal with that. Sorry.

5 MR. DAVID HARDIN: But there is an
6 exemption in the law.

7 MR. BRUCE SHUPP: We're running over.

8 MR. DAVID HARDIN: Well, there is a
9 position in the law that allows public supply to also
10 apply for an exemption. There's some guidelines they
11 have to go by, but there is an exemption for them, or
12 at least they can apply for that exemption as long as
13 they meet certain requirements and continue to
14 withdraw below low flow.

15 MR. BRUCE SHUPP: Two more questions.
16 Miles and then Greer. Quick ones, I hope.

17 DR. PAUL TEAGUE: Mr. Chairman, the
18 last point of order --

19 MR. BRUCE SHUPP: You can leave.
20 Miles.

21 MS. MILES MENNELL: So say
22 hypothetically we have gotten to the point where
23 people are being charged for taking water out of the
24 Tennessee River, but in Alabama they are charging one
25 thing and in Mississippi they are charging another

1 thing and in Tennessee they are charging something
2 different, how do we address that?

3 How do we, as a multiple state
4 jurisdiction, the river's ruining through it, in your
5 opinion, how do we get to the point where there's a
6 consistency of policy and consistency of practice?

7 MR. TOM LITTLEPAGE: I think it's a
8 real strong hypothetical, but given the dialogue that
9 is currently occurring and given the sensitivity to
10 public outcry, I just don't think you could live with
11 having a disparaging price structure among the
12 different states for that same -- I think there would
13 have to be some strong rationale for that.

14 MR. BRUCE SHUPP: Greer.

15 MR. GREER TIDWELL: I'm not sure who
16 can answer this question. There was a discussion
17 about a Georgia piece of legislation that sounded on
18 point to this issue. Can one of you guys explain
19 what you're talking about or somebody else around the
20 table talk about what happened in Georgia?

21 MR. TOM LITTLEPAGE: Well, Georgia --

22 MR. GREER TIDWELL: I don't want to
23 debate the issue, I just --

24 MR. TOM LITTLEPAGE: Again, I'm not
25 from Georgia and I don't propose to represent their

1 interest here, but you obviously were following it.
2 They said they had -- there was a piece of
3 legislation in Georgia's session that dealt with
4 permit trading that will allow a holder of a permit
5 in Georgia to sell that water to somebody potentially
6 even outside the basin, and that legislation failed.

7 MR. BRUCE SHUPP: Thank you guys so
8 very much for your help. Okay. Coffee break time.

9 (Brief recess.)

10 MR. BRUCE SHUPP: We have heard
11 regional viewpoints and we have heard a national
12 perspective and we have heard state and local
13 viewpoints on TVA's role regarding water quality
14 management. Now we're going to hear from TVA, maybe
15 one of our most important presentations of the day.
16 We're going to hear from Gene Gibson.

17 Gene is a mechanical engineer. He has
18 been with TVA for 27 years. He's had, as described,
19 varied jobs for Kate, including --

20 DR. KATE JACKSON: But not all 27 of
21 those years.

22 MR. BRUCE SHUPP: Including sending
23 him out to 30 countries to represent TVA. My God,
24 what did you do to that man?

25 DR. KATE JACKSON: Gave him lots of

1 opportunities.

2 MR. BRUCE SHUPP: Great experience to
3 get an outlook of the water policies in a lot of
4 other nations and to see the problems that a lot of
5 nations are going through today. Gene is going to
6 share with us TVA's role in water quantity
7 management.

8 MR. GENE GIBSON: Thank you,
9 Mr. Chairman. It's really a pleasure to be able to
10 speak to you on water supply and what TVA is doing
11 and maybe what TVA is not doing and maybe a little
12 bit about what we should be doing. I am looking very
13 forward to your input on giving us some advice on
14 what we should be doing in the area of water supply.

15 Before I get started I wanted to thank
16 the other presenters that were so gracious in making
17 the trip to the Valley today and coming down and
18 sharing their expertise with us on the important
19 subject of water supply.

20 My focus today is just going to be
21 basically on talking just a little bit about the
22 emerging major issue of water supply. And as the
23 slide indicates, I believe that water supply is on
24 the radar screen.

25 This slide -- I got involved with

1 water supply a couple of years ago, and I didn't
2 really understand this when I first saw this quote
3 that was attributed to Mark Twain. Soon after I got
4 involved in water supply, I really understood it,
5 because for some reason, there's no problem with
6 sharing whiskey but when you start talking about
7 sharing water it's a major area of conflict. The
8 water seems to pit neighbor against neighbor and city
9 against city, county against county, state against
10 state, when you start talking about water.

11 I realize water availability is a
12 fixed supply and the demands are increasing. I find
13 it kind of ironic sometimes that the states are
14 willing to -- the natural resources like oil and gas,
15 and that sort of thing, they don't have a problem
16 with pumping out those natural resources and selling
17 it and doing that sort of thing, but when it comes to
18 water it's taboo, you know, we're worried and we're
19 not going to give our neighbors any water. So really
20 it's going to be from a public policy standpoint.

21 I'm just curious, is there an
22 opportunity for TVA to serve as a unifying influence
23 within the Valley, to use the river as a unifier for
24 the various Valley states?

25 To see the emerging conflicts, one

1 needs to look no further than the newspaper. I have
2 got a stack of these articles that I have sort of
3 collected over the last couple of years, and I just
4 wanted to sort of highlight some of these.

5 Water Supply in the News, this is the
6 one that came out that we were talking about a 5
7 million gallon transfer, Eastside Utilities
8 transferring 5 million gallons to North Georgia.

9 This one, State Files Suit Over Use of
10 Lake Lanier Water, the priority was it was wanted for
11 humans and not other purposes. There's a lawsuit
12 filed there. The states are obviously very familiar
13 with all of that.

14 Birmingham News, this past February,
15 The Three State Water Talks to Resume. There was
16 sort of a turnover in a couple of the governorships
17 and the Governors have gotten back together and said,
18 hey, we're going to work this stuff out, this water
19 war stuff.

20 Arkansas, the Sparta Aquifer going
21 Downhill Fast, panel says, enduring harm seen in 30
22 years if groundwater use doesn't fall.

23 Again, as Kate had indicated earlier,
24 when you think about this, it is a shared resource
25 and you have -- we talked about watersheds on the top

1 and you have got these aquifers on the bottom and
2 these bounds of the aquifers are different from the
3 watersheds on top. Then you've got these political
4 boundaries that are sitting through them both. So
5 it's a real issue.

6 A couple more here. I have sort of
7 been following what's going on in Georgia with quite
8 a bit of interest because I think they're definitely
9 in a water crisis at this point. So they are sort of
10 leading the rest of the southeast in trying to figure
11 out what in the heck it is they are going to do.

12 And it's kind of noteworthy here that
13 they have actually implemented statewide a water use
14 already, and this is kind of unusual from the
15 standpoint that they are actually restricting water
16 use and there's not -- when there's not a drought
17 going.

18 It's not unusual when there's a
19 drought for this to happen, but they've actually
20 restricted water use right now so that people -- you
21 can only wash your cars and water your lawns and fill
22 your pools for even number addresses three days a
23 week and odd numbered addresses three days a week and
24 nobody can do it on Fridays, I'm not sure why, but
25 that's the way they worked it out.

1 This is the other one that -- I think,
2 Steve, you were mentioned earlier, The State Panel
3 Okays Right to Buy and Sell Water Permits. What was
4 really going on there was the farmers were actually
5 pushing this very heavily because they had these
6 permits in place for so much water, and with the
7 water crisis and the potential value of the water
8 going up they said, hey, let us sell these permits
9 and it may be more profitable than farming to
10 actually sell water that they had the rights to.

11 There's a lot of debate. It's very
12 controversial in Georgia. And ultimately, they
13 didn't pass it. The concerns about the potential
14 outside other states coming in buying up the rights
15 to that water and maybe shipping it outside of
16 Georgia, that concern overrode the other concern and
17 they just didn't get it through.

18 This one is from the National
19 Tennessean, The Governor's Very Protective of Water
20 Supply. It says, the states want to avert the
21 conflict. The prior Governor's administration in
22 Tennessee, the Governor's policy on interbasin
23 transfers was sort of, well, we want to make sure
24 that Tennessee's needs are covered first, and then
25 with whatever excess we have left, we want to be

1 generous and everything. So that was his policy.

2 This last one here is a Birmingham
3 Blount County, that's not Blount County, Tennessee,
4 it's Blount County, Alabama, and they have approached
5 us and they are talking to us about the possibility
6 of having a regional surface water supply that would
7 supply Blount and on into Birmingham. So they are in
8 the process of looking at that right now.

9 So why all the concern about this
10 water supply stuff?

11 I think if you look at it you either
12 have water or you don't. And actually, these are
13 some quotes that I have sort of picked up from
14 different individuals, but quality of life in our
15 region depends on ample water for homes, businesses,
16 farms, meeting places, and so forth I think that's
17 very true.

18 Then obviously this is another quote
19 in a letter that we have gotten from one of the
20 Governors from the Valley states indicating that,
21 hey, dependable water is as fundamental to the
22 economic growth of the region as is dependable low
23 cost electricity. I sort of thought that sort of put
24 things kind of in perspective as well.

25 Actually, many would probably argue

1 that water is or will be the prime limiting factor
2 for economic growth in the U.S. or in the Valley.
3 It's also anticipated that water supply and water
4 quality issues, coupled with emerging water-use
5 conflict, will continue to increase across the
6 southeast. And we're seeing more and more discussion
7 on that at the federal, state, and local levels.

8 So according to the National Research
9 Council, the principal water problem in the early
10 21st Century will be inadequate and uncertain
11 supplies. That's sort of what we're seeing right
12 now.

13 What's driving this growth in water
14 demand?

15 I pulled this slide together just to
16 kind of show what's happening in terms of population
17 shifts over the last 30 years. You can see that most
18 of the U-Hauls are heading south or heading west, it
19 seems. Folks are moving to the south, sunny south,
20 and to the west. The south and the west are growing
21 10 to 15 times as fast as the northeast and midwest.
22 So I think that's sort of a telling sign in terms of
23 population shifts.

24 When we actually look at what's
25 happening in the Valley, I have listed the Valley

1 states here in terms of population growth. I have
2 also thrown in Florida and South Carolina just to
3 kind of cover the southeast region there. I have
4 ranked them.

5 The U.S. average growth in the last
6 decade was 13.1 percent population growth. You can
7 see that out of the whole southeast, Georgia was
8 growing at twice that rate in terms of population.
9 If you actually look at the metro Atlanta region,
10 it's going at 40 percent. So it's even much higher
11 than this, the metro Atlanta region.

12 I also looked -- when you look at the
13 metro Atlanta region itself, the metro Atlanta region
14 is -- if it were a state, it would be larger
15 population-wise than 20 of the U.S. states. So just
16 the metro Atlanta area is a huge area.

17 I've sort of listed down here the
18 growth ranks in terms of growth rate. Georgia was
19 the sixth fastest growing, Florida seventh, ninth,
20 and so forth. So you can sort of see where the
21 growth ranks are, and then the population rank, too.

22 You can see that out of the U.S.
23 average the only -- the Valley states, Mississippi,
24 Alabama and Kentucky, are growing population-wise a
25 little bit less than the national average, and the

1 rest of the Valley states are faster than the
2 national average.

3 One other point I was going to mention
4 in terms of Georgia, a lot of -- there's some studies
5 right now that indicate that actually the freshwater
6 supply for Georgia, they are actually going to run
7 out of water within the next 20 years. So there's a
8 tremendous amount of concern in that particular area.

9 This is -- the slide kind of indicates
10 what the total freshwater consumptive use is. All I
11 did was I got the latest data from Susan and the GS
12 study back in 1995, and I divided it by the number
13 of -- the population back in 1995, and I came up with
14 a per capita use for the southeast region, just to
15 show how much water per capita is being consumed
16 within the southeastern region. And as you can see,
17 Mississippi was pretty high there.

18 And again, this is directly related to
19 the agricultural irrigation use. The more
20 agriculture and the more irrigation that you have in
21 the state, the higher that value is going to be. So
22 you have that, coupled with catfish farming, and
23 there's some other things that are going on, the high
24 water use industries that are businesses or whatever
25 that are going on in some of these states.

1 So a lot of times you will hear the
2 numbers about how much water we're using and we're
3 wasting water, and that sort of thing, most people,
4 they don't get back to look at the actual consumptive
5 use, which is the thing that we're primarily
6 interested in.

7 So what about the Tennessee Valley
8 watershed?

9 Several years ago, you know, when I
10 first started getting into this, Kate and Janet
11 started asking me a bunch of hard questions, you
12 know. I mean, they had pretty good information. You
13 know, they were saying, we know how much the rainfall
14 is and we know how much is flowing through the
15 system, but about these draws, how much water is
16 being pulled out and put back in and this water
17 balance stuff?

18 I said, that's a good question, and I
19 didn't have the answer for that sort of thing. So
20 Kate was saying, well, you better hop about finding
21 the answers.

22 So for the last 18 months or so I have
23 been trying to get a handle -- a better handle on the
24 details of what's actually going on in the Tennessee
25 Valley watershed. So Susan shared some of that this

1 morning.

2 Actually, the information on the river
3 system water balance was and still is limited to some
4 extent. There was actually limited data on the
5 individual water users in the Valley. You know, how
6 many public supplies, how much water is being pulled
7 out, how much irrigation is coming out of the Valley,
8 we didn't really have a good handle on that. It was
9 the sort of thing where, hey, we have got enough
10 water and everybody can just take what they want,
11 that was sort of the approach that had been taken.

12 The water stressed areas, we know
13 there's some water stressed areas. Those that are on
14 the main stem and so forth have access to that water,
15 but we're already seeing water short areas within the
16 Valley, primarily up in the headwaters and the small
17 streams that are up there where there's a limited
18 amount of water, as well as the plateau areas in
19 between basins, that's typically where we're seeing
20 that there's not an abundance of water.

21 Regional watershed drought management
22 plan, is there a drought management plan or water
23 conservation measures in place for the Tennessee
24 watershed? No, there isn't.

25 We don't -- our problem has typically

1 been like it is today, too much water. Although,
2 there are times when we -- the flip side of the coin
3 where we have a shortage of water, but TVA does not
4 have a drought management plan.

5 Over the last ten years or so, the
6 emphasis has been on water quality versus water
7 quantity cumulative impacts associated with
8 additional withdrawals coming out of the system. I
9 think as time goes on, just like back in the '30s,
10 water quality or recreation or some of those other
11 beneficial uses were not widely understood or known.
12 I think now as time goes on we're recognizing and
13 appreciating these additional benefits, and water
14 supply is, I think, among those.

15 A lot of questions have been, hey,
16 what about the reimbursement?

17 Obviously, when you pull water out of
18 the system and consume water and don't put it back
19 in, that's water that could have been used for other
20 beneficial purposes.

21 Is there any reimbursement for lost
22 power or other benefits? The answer is, no, there's
23 not basically.

24 There's no requirement that TVA be
25 reimbursed for those, and we have not tried to get

1 reimbursed for those, generally speaking.

2 Again, the answer has sort of been,
3 well, the Federal Government is not responsible for
4 water supply, it's basically a state and local issue.

5 So what do we do or what are we doing?

6 Some might say that this is -- TVA's
7 in a reactive role. I prefer to say, hey, we're in a
8 responsive role being responsive to the needs and the
9 requests that we get from the states. TVA does work
10 very closely with the states on water quality issues.

11 Minimum flows, those kinds of things,
12 any kind of permits, the various states are -- when
13 they are in the process of doing those, many times
14 they will come to TVA and we work together. We
15 ourselves voluntarily comply with state and federal
16 regulations.

17 Any intakes or discharges that are on
18 the water come in through the 26 Day Act of TVA and
19 TVA has to approve those. Typically in the past we
20 have just been looking to see if it impacts -- has
21 the potential to impact navigation. And if there's
22 no potential to navigation, the request was approved.

23 We actually have some old permits in
24 place that there was no water quantity requirement
25 placed in the permit. It was like a 12-inch pipe or

1 a 15-inch pipe, and TVA said, okay, so you could
2 just -- as Bill was indicating earlier, you could
3 pull as much as you could pull through the equipment
4 that he had. There was not a water quantity
5 limitation on that.

6 In the past we have performed
7 environmental citing and studies. Back when TVA used
8 to get appropriations, there was a lot of money that
9 would come through TVA to help local communities and
10 that sort of thing with their water supply issues.
11 We don't obviously do as much of that now as we used
12 to since TVA no longer gets any federal
13 appropriations.

14 We respond to stakeholder issues and
15 concerns from -- everything from folks that are
16 located near the Tennessee River, if the water level
17 goes down sometimes their wells run dry, and we will
18 get calls saying, hey, what's going on with the
19 river? Can you raise the river up or do something?
20 My well is dry. I always say, well, drill your well
21 a little bit deeper, you know.

22 Then obviously encouraging regional
23 cooperation among the counties. The more cooperation
24 that we can get, it's better for TVA to have one
25 intake that serves multiple communities than every

1 little county as you go along putting a pipe in the
2 water. So we try to encourage that.

3 As I indicated earlier, there's
4 limited attention to the impacts of the other system
5 benefits. Although, we are doing a better job, I
6 think, and we're starting to better assess the
7 potential impacts on the rest of the system.

8 We have sort have been pushing the
9 envelope a little bit in the last couple of years.
10 When people are asking for 26(A) permits, I have been
11 saying that, hey, you have got to provide a bona fide
12 needs analysis, something that documents what the
13 actual needs are for that extraction, primarily
14 because we're seeing a lot of folks come in trying to
15 reserve water.

16 There's so much concern about water
17 supply along the Tennessee River and the concerns
18 about Atlanta that a lot of the communities that are
19 on the Tennessee River are coming in saying, well,
20 hey, I better put my dibs in now for my water. So
21 they will come -- they wouldn't use that much water
22 in 200 years, but they are coming in saying, hey, I
23 want 50 MGD. So what we are doing is saying, no, you
24 can't do that. So we're ensuring that the permits --
25 the 26(A) permits are for a specific quantity of

1 water and we're not allowing them to reserve water,
2 so to speak.

3 Let's see. I just wanted to show
4 this. It kind of gets back to some of the things
5 Peter was talking and some of the other folks about
6 climate change and increased variability. This slide
7 shows, you know, the average -- the deviation from
8 the normal average runoff from 1900 on through 2000.

9 You can see the years where we got a
10 lot more water and then the years where we got a lot
11 less water in the Tennessee Valley region. So you
12 can see the variability.

13 And the question is, are these peaks
14 getting more and more frequent than what they have
15 been in the past?

16 In addition, if you think about this,
17 I mean, the fact that in the end the average is the
18 same, but for all of those where you get -- like the
19 last couple of days where you have had 10 inches of
20 rain, you know, there may be a time where you go
21 three or four months and you get very little rain.
22 So the average comes out the same, but the extremes
23 are more severe.

24 As I indicated, this up here is where
25 TVA has been working really hard in -- to manage

1 flood control. And, of course, flood events could
2 occur down here too, but in general managing excess
3 water. We haven't really focused that much on the
4 times when you have less than excess water or on the
5 downside.

6 So as time goes on I think there's an
7 opportunity for TVA to basically be doing more in the
8 other areas, which I think is some of the
9 recommendations that have been coming from the
10 council.

11 We are seeing increased requests from
12 various stakeholders. These requests come from --
13 the local and state requests from within the
14 watershed, the Valley states for different types of
15 support. We do get requests from the power service
16 area outside the watershed.

17 For example, Memphis, you know, is
18 actually a large power customer. It's not in the
19 watershed but it's in the power service area, and
20 Memphis is quick to remind you that, hey, we don't
21 get any flood control benefits or whatever, so how
22 about helping us out a little bit with our water
23 supply situation as folks that are in the watershed?

24 So then you have that issue of inside
25 the watershed and outside the watershed. Then you

1 also have folks that -- the concerns with people
2 that -- I mean, there's some logic to the people that
3 pay the power bills because everything is funded by
4 power now. So they say, if I am paying the power
5 bill, then I deserve as much support as anybody else
6 in the Valley that's paying for power.

7 But then you also have the situation
8 of folks that are looking at interbasin transfers
9 where water may be transferred outside the water
10 service area, say, to Birmingham, for example. If
11 water went there, we don't even sell power to that
12 particular area.

13 So there's an opportunity there, if it
14 was just improved willy-nilly, that you could be
15 sending water to an area that's not in the watershed,
16 not in the power service area even, and therefore,
17 the people within the watershed and the power service
18 area would be subsidizing water supply in another
19 locale.

20 The types of request we typically get,
21 everywhere I go the first question they ask is, do
22 you have any money?

23 These local communities, particularly
24 the local communities, these rural areas where they
25 are just barely getting by, you know, and they are

1 trying to figure out how they are going to comply and
2 how they are going to get water. Gene, can you help
3 us, you know, and I quickly inform them that all we
4 have is credit and, you know, a big debt. We don't
5 really have any money unfortunately to be able to
6 support.

7 We're also getting a number of
8 requests on the interbasin transfers. That's a
9 growing -- even though Tennessee -- I wanted to point
10 out that Tennessee had actually declared a moratorium
11 on any more interbasin transfers until after the
12 Reservoir Operations Study was completed, again,
13 because they were concerned about water -- you know,
14 what's the cumulative impacts of pulling out this
15 water from different locations on the long-term
16 sustainability of the water supply.

17 As Tom mentioned earlier, a lot of
18 these independent power producers were coming in
19 looking and needing water. Usually they didn't come
20 to TVA obviously. They would come in through the
21 local communities and try to sell them on the project
22 and then tell the local community, would you go to
23 TVA and see if you can get a permit for water.

24 So it was always they would come to me
25 and they would say, hey, we have got an opportunity

1 here of an industry here that needs 5 million gallons
2 a day, do you think you might be able to help us?

3 As always I'd say, which IBP is this?

4 They'd say, oh, you know about that.

5 So it's kind of funny really the way it always sort
6 of worked out. Obviously, we're not seeing as many
7 of those now. I mean, it's sort of cooled off.

8 TVA, a lot of types we get requested
9 to sort of support in facilitating conflict
10 resolution between various counties or municipalities
11 that are kind of arguing about water, and I think
12 they sort of look at TVA as kind of an honest broker,
13 outside party if you will, that doesn't have a direct
14 interest in each of the countries.

15 So, hey, could you come in and help
16 facilitate the discussions between our two counties
17 or whatever? And we do quite a bit of working in
18 that regard.

19 And then obviously groundwater and
20 surface water interaction, there's a lot of
21 discussion that's going on on that, recognizing that
22 there's actually one resource. Most people sort of
23 look at it as separate, you know, they say we only
24 handle surface water, we only do surface water, but
25 in actuality there's a report here that's a very good

1 report by the GS that talks about groundwater and
2 surface water as a single resource.

3 Obviously, there is a close linkage
4 between groundwater and surface water, but it's very
5 hard to measure and it's very hard to quantify.

6 When you think about groundwater and
7 when you're in a drought type situation and it hasn't
8 rained for a month and the river is still flowing,
9 you recognize that water is coming from somewhere,
10 and it's coming from the ground. So there's a huge
11 contribution of groundwater that goes into the river
12 system, and the other way as well. The river system
13 itself serves as recharge throughout the riverine
14 areas.

15 Why do these folks look to TVA?

16 These are some of the reasons for why
17 are you coming to TVA, you know, maybe you should be
18 going to -- the state has the responsibility for
19 water supply, but these are the reasons that I hear.
20 They say, well, hey, we thought your mission is
21 watershed development and economic development and,
22 hey, you've helped us in the past and there's nothing
23 more critical than water supply, so can you help us?

24 Water supply is a multipurpose
25 benefit, and also, you have the technical resources

1 to help us. And one other one is the states, while
2 they have a good knowledge of what's going on in
3 their particular state with the river or the
4 groundwater, that information and knowledge is fairly
5 much limited to their particular state. They have a
6 hard time knowing what's going on with the other
7 states. Whereas, TVA, from the river system
8 standpoint, we have a good grasp of what's going on
9 over the entire river basin area.

10 Obviously, the fact that we have 26(A)
11 permitting authority in the -- and those that want to
12 pull water out of the system or put an intake
13 structure in, they have to come to TVA anyway for
14 approval, in many cases they come to TVA to say,
15 well, we have got to come to you anyway, so can you
16 help us up front figure out what it is and what we
17 have to do to make this process as painless as
18 possible and get the approval?

19 And also, we have a history of working
20 across the various state boundaries. As it has been
21 articulated a couple of times today, the big question
22 that we had before us is, can the Tennessee River
23 continue to meet the increasing water supply demands
24 throughout the watershed for the short- and the
25 long-term?

1 And to sort of answer that question,
2 excuse me, we had actually already started on some of
3 that work before the Reservoirs Operation Study was
4 initiated. So we had started this, and the approach
5 that we took was to work with the USGS and inventory
6 the current uses, all of the extractions and the
7 water that was going back in, and then project those
8 uses as best we could to what they would be in the
9 year 2030.

10 What we're actually doing right now,
11 we're in the process of reviewing that data and the
12 availability of water and trying to identify those
13 pinch points. Where are those particular areas of
14 the Tennessee Valley that are likely to have problems
15 within the next 30 years, the emerging problems?

16 We would take the study and then
17 provide input to the ongoing Reservoir Operations
18 Study, and we will be looking at all -- using this
19 data as input to look at all the impacts on the
20 interbasin transfers on the system.

21 And as Kate, I think, mentioned
22 earlier, we're going to have a separate meeting and
23 briefing to kind of go over the results of the ROS
24 and that sort of thing, and the water supply will all
25 be a part of that as well.

1 Just to kind of give you an idea of
2 the difficulty though in trying to go through, when
3 you don't have all of this information at hand, when
4 we got this information it wound up being about 500
5 groundwater extractions going on in the watershed,
6 and we had about seven or 800 surface water
7 extractions in the watershed, and then we had about
8 300 or something permitted discharges within the
9 Tennessee Valley watershed.

10 So we had to go through and get all of
11 this information. So you can imagine what a task it
12 was to kind of collect all of this information and
13 get it in a database, but that's what we have done
14 now.

15 So this has already been hit on today
16 by Susan. I will just mention it again. One thing
17 that we found as a result of this project was, hey,
18 the Tennessee region is the most intensively used
19 water region of the nation on a
20 gallons-per-square-mile basis. It's also the least
21 consumptive on the basis of how much we return,
22 97 percent of that water is returned back to that
23 system for other downstream uses.

24 I think you have probably already seen
25 these slides too that actually shows the actual

1 numbers again from Tennessee and California and so
2 forth. There's a little on the consumptive losses.

3 This one actually is a further
4 breakdown of the 2020 and 30 total expected water use
5 so you can see what we're projecting in terms of
6 growth over the next 30 years. We're looking at
7 about 15 percent growth over the next 30 years in
8 total water use.

9 And we have thrown up some other
10 numbers up here just to kind of give you a flavor.
11 The average flow through Fort Loudon is close to like
12 12,000 MGD. Obviously, there's a lot more right now
13 going on, but you can see sort of relatively how that
14 looks.

15 In terms of consumptive water use, we
16 see that going up about 50 percent as compared to the
17 15 percent of the extractions. Consumptive water use
18 will likely go up about 50 percent. And as Bill
19 L'Ecuyer mentioned this morning, they pull out about
20 40 MGD. So this is 350, 650 to about 1,000. So you
21 can see it's about eight or nine Chattanooga in
22 terms of consumption is what we're going to be adding
23 to the system in the next 30 years in all likelihood.

24 You have already seen this one that
25 Susan presented this morning in terms of trends. So

1 all of this is going to be in a report. It's going
2 to be used -- the use and projections will be
3 documented in this USGS report. It's going to be
4 available on the GS web site. As we indicated
5 earlier, we can get you a copy of this for the entire
6 Tennessee Valley watershed.

7 Again, I want to echo what Susan
8 indicated, this is fairly unique. I don't think
9 there's any other watershed that probably has this
10 level of detail and this information on a watershed
11 basis. So from that standpoint, I think we're
12 probably ahead of the game.

13 And as far as the inventory needs
14 analysis of those pinch points and the critical
15 areas, all of that, that's also going to be
16 documented in sort of a companion report by TVA, and
17 that will also be made available to the states and
18 the local stakeholders.

19 So I guess I will just end with the
20 fact that, hey, when the well is dry, I think that's
21 when we will know the true worth of water, as a wise
22 guy once said, you know. So with that, I look
23 forward to hearing any discussion you may have or
24 answering any questions that you might have on water
25 supply.

1 After a couple of years I have become
2 affectionately known as water boy at TVA. I assume
3 it's with affection.

4 MR. BRUCE SHUPP: Thank you, Gene.
5 Appreciate it. Questions for Gene.

6 MR. GENE GIBSON: Well, I couldn't
7 have been that good.

8 DR. STEPHEN SMITH: I know -- I know I
9 was a little late this morning and I don't know if
10 y'all got into this, but I'm really interested in
11 understanding a little bit more about where -- how
12 much pressure TVA is getting to transfer water south
13 into Georgia.

14 MR. GENE GIBSON: Oh, I don't think
15 we're getting very much pressure. I mean, there's a
16 lot of interest. With TVA I am very interested in
17 that study. So I have been attending the Georgia
18 meetings, the Georgia Water Resource Conference.

19 There's -- I think it's going to be
20 very difficult for them to get water from Tennessee
21 because they can't agree among themselves to even
22 transfer water within Georgia first, you know. And
23 as I indicated, there's a lot of -- a lot of the work
24 they are doing now is just getting to the point where
25 they can transfer water from across county lines to

1 the next county. So I think they know it's going to
2 be an uphill battle to try to get the public to, I
3 guess, accept or agree to that.

4 DR. STEPHEN SMITH: I mean, I
5 appreciate that at this point in time because -- but
6 my understanding is that -- and the little bit that I
7 understand is that the intensity level and the volume
8 is cranking up very rapidly as they begin to
9 understand that they've grossly overshot the carrying
10 capacity down there.

11 MR. GENE GIBSON: Right.

12 DR. STEPHEN SMITH: And as they begin
13 to deal with that, I am just -- I mean, I am curious
14 to maybe ask you to look into your crystal ball and
15 see realistically -- you know, we had a previous
16 speaker that mentioned that, you know, even if we
17 wanted to somehow limit it that we could potentially
18 get overruled, so to speak, and I'm interested in
19 understanding to where the -- maybe the soft spots
20 are where there's vulnerabilities where an area like
21 Atlanta that's growing out of control basically is
22 able to come into another region and try to rectify
23 poor planning.

24 MR. GENE GIBSON: Right.

25 DR. STEPHEN SMITH: And an area that

1 is actually trying to do good planning gets drug into
2 an area that isn't doing good planning.

3 MR. GENE GIBSON: Right.

4 DR. STEPHEN SMITH: So, I mean, I
5 guess that's what I am really trying to explore is,
6 where are those vulnerabilities, where is it -- where
7 are the opportunities because I think that's a
8 question that we need to be thinking about looking
9 forward is how do you begin to try to, you know,
10 protect yourself and force people to maybe make other
11 decisions about how they grow a particular area
12 instead of just sort of having this in the back of
13 their mind that, you know, well, if it really gets
14 bad enough we're just going to, you know, start
15 sucking it out of somewhere else.

16 MR. GENE GIBSON: Right.

17 DR. STEPHEN SMITH: I would be
18 interested in getting your thinking on that.

19 MR. GENE GIBSON: Well, I have been
20 very impressed with the approach that the folks in
21 Georgia and Atlanta are taking right now. I always
22 wonder, you know, when you say you're from Tennessee
23 or whatever if you're getting the straight scoop or
24 whatever, but just, for example, I mean, I had
25 Georgia lined up to come today, they were supposed to

1 be here, they were on the agenda, but as a result of
2 the stuff that's going on with Alabama and the
3 Governors are getting ready to meet next week, then
4 they called and said they weren't able to make it
5 because of this and they couldn't send a substitute,
6 because I had told them, I said, hey, everybody is
7 going to be interested in talking to you about this
8 stuff that's going on in Georgia.

9 The approach that they have taken --
10 they are taking in terms of coming up with a
11 comprehensive water management and water management
12 strategy, it's -- they are spending a lot of money on
13 this planning stuff, and their intentions is to solve
14 their own problems themselves within the confines of
15 Georgia. There's no question in my mind that they
16 are absolutely trying to do that.

17 The same thing with the conservation
18 techniques that they are taking, because what they
19 are hearing from their neighbors is, don't come to us
20 for water until you have exacerbated all other
21 avenues.

22 You know, I have sat in meetings where
23 they have talked about replumbing, you know, all of
24 Atlanta and they are looking at all of those things,
25 having two lines coming into homes and so forth.

1 Now, that's not to say that they aren't also maybe
2 pursuing other avenues that aren't as public, you
3 know, but I have been impressed with the work they
4 have been doing up to this point.

5 And from that standpoint, I think
6 there's a lot that can be learned from an area that
7 is water stressed. You know, the approaches that
8 they are taking and some of the things that they are
9 doing may be good examples that we could use
10 elsewhere in the valley or other states might be --
11 very well might be wise in looking at. At the same
12 time, I mean, start talking water permits, selling
13 water permits, I am not sure, you know, about that.
14 I don't know if that answered your question, Stephen,
15 or not.

16 MR. BRUCE SHUPP: There is no answer.

17 DR. STEPHEN SMITH: It's an answer. I
18 don't know that there is an answer. I mean, I was
19 just curious to understand from your perspective
20 things that we might be looking at and
21 recommendations, basically where there are
22 vulnerabilities to, you know, a situation that this
23 region has that may come up.

24 I appreciate what you're saying, that
25 they are struggling with this. I think they are

1 going to be hard pressed because those growth rates
2 and other things like that is -- you know, I mean, my
3 experience from having relatives and we have an
4 office in Atlanta and some of these other things, I
5 mean, I am not that keenly aware that people are
6 going -- I mean, they are talking about it, but I am
7 not necessarily seeing a lot of the things -- at
8 least they have not been top of the line to us about
9 implementing all of these kind of things.

10 MR. GENE GIBSON: Right. I don't
11 think they're in the implementation stage.

12 DR. STEPHEN SMITH: Moving -- you
13 know, talk is always cheap. So moving the talk to
14 the political realities and instituting it and all of
15 this other kind of stuff, then all of a sudden people
16 try to short circuit to the much easier or quicker
17 fixes that --

18 MR. GENE GIBSON: No question about
19 it.

20 DR. STEPHEN SMITH: -- are probably
21 not sustainable.

22 MR. BRUCE SHUPP: Greer.

23 MR. GREER TIDWELL: For some reason,
24 Stephen's question got me thinking about the fact
25 that those of us who are sort of physically

1 responsible in our own life have to pay a little bit
2 more every time we go to Wal-Mart because of the
3 shoplifters and we have to pay a little bit more to
4 keep up the bankruptcy system. Somehow if we can
5 avoid or minimize those costs to the good planning
6 communities, that will achieve what you're talking
7 about doing with the water, just -- that's not a
8 question I wanted to ask about though.

9 MR. GENE GIBSON: Good comment though.

10 MR. GREER TIDWELL: That's the model
11 that's starting to kind of float around in my head
12 about how you make sure the communities who are doing
13 good jobs with water use planning and growth planning
14 have their costs for dealing with other communities
15 minimized, that's kind of a model floating around in
16 my head.

17 DR. STEPHEN SMITH: Well, I am not
18 sure how much we're doing good planning as much as
19 we're just blessed with water.

20 MR. GREER TIDWELL: Well, that's the
21 point though, as we go into the future hopefully
22 somebody will be doing some good planning.

23 DR. STEPHEN SMITH: Yeah. I'm not
24 sure about the conservation efforts we're taking on
25 our end.

1 MR. GREER TIDWELL: Gene, I wanted to
2 ask about some numbers, which I don't normally do,
3 but I have got to get this model in my head from what
4 you presented and what Susan presented.

5 Between the year 2000 and 2030 I saw a
6 number earlier that indicated, I think, the
7 withdrawal, I think it was called use then, but I am
8 trying to categorize things as withdrawal and
9 consumption, to keep them in two categories that are
10 separate, is shifting downward from about 2,700
11 gallons per day per person to 2,300 gallons per day
12 per person, that was Susan's slide, but is that
13 right?

14 And then I think you just indicated
15 that the consumption increase on total is going to be
16 from 650 million gallons per day to 980 million
17 gallons per day out of the Tennessee River system?

18 MR. GENE GIBSON: Uh-huh.

19 MR. GREER TIDWELL: Do you have -- do
20 we have a number on the gallons per day per person on
21 consumption impacts? Are we changing our consumption
22 habits or just more people?

23 MR. GENE GIBSON: I think it's both.
24 Susan can help me out here.

25 MS. SUSAN HUTSON: Yeah. Gallons per

1 day per person is essentially a domestic use, and
2 that's calculated by taking the residential
3 deliveries from public supply and adding that to the
4 self-supplied domestic withdrawals. And in 2000 we
5 did -- the USGS did not collect that number for the
6 first time. And so when we went into -- so I don't
7 have a number for you for 2000. I only have that '95
8 number.

9 MR. GREER TIDWELL: That's fine.

10 MS. SUSAN HUTSON: Something like --
11 actually, I did that for 2000 for Tennessee. I'm
12 remembering 72 gallons per day per person. And I did
13 that by looking at all the small systems that didn't
14 have any commercial connections and dividing the
15 number of people or the number of gallons by the
16 number of people, so 72 gallons.

17 In Bill's earlier presentation he is
18 indicating that system-wide that those per capita
19 are actually declining, but I think he was probably
20 looking at household rather than -- which this is a
21 per person, he was probably looking at household use.

22 He indicated that they have looked at
23 water over a ten-year period and they are seeing a
24 decline in the residential per capita. Okay. So
25 that's residential.

1 This gets very confusing mainly
2 because people steal definitions and terms from each
3 other.

4 When I talked about earlier that the
5 gross per capita was declining, gross per capita
6 accounts for all of the withdrawals in thermoelectric
7 industry, public supply, and irrigation.

8 MR. GREER TIDWELL: You've shifted
9 from consumption to withdrawal now.

10 MS. SUSAN HUTSON: Now I have changed
11 my turn.

12 MR. GREER TIDWELL: Okay.

13 MS. SUSAN HUTSON: The consumptive use
14 is water that's -- okay. Consumptive use at the
15 domestic level is one of those terms that are used in
16 two different places.

17 Okay. We should really say drinking
18 water per -- or, you know, the domestic residential
19 use is what we're talking about when we talk about
20 the 72 gallons, and often people commonly refer to
21 that as water consumption and that's not what we're
22 talking about here.

23 We are talking about the loss to the
24 system, that's water that's evaporated, transpired,
25 incorporated in crops, consumed by people and

1 livestock or transferred, lost out of the whole
2 system. So that's where it gets very fuzzy and
3 confusing.

4 So what we're talking about in the
5 watershed in consumptive loss, you know, which may be
6 a better way to put it, consumptive loss, that
7 although we're looking at increased consumptive loss
8 to the watershed, about a 51 percent increase in
9 consumptive loss, we are still looking at a per
10 capita decline.

11 That gross per capita decline in the
12 future is about 2,300 gallons per person because the
13 population continues to increase, so we have more
14 people. We have -- the divisor is larger, and the
15 fact that some of that decrease is in our largest
16 use, you know, thermoelectric becomes 82 percent of
17 the picture instead of 84 percent. So we're -- that
18 per capita is shrinking.

19 So that's a way to sort of normalize
20 the data. So, yes, it gets very confusing when you
21 start talking about these little ways of clarifying
22 the data.

23 Does that clarify it?

24 MR. GREER TIDWELL: I have got a motto
25 because I work in the environmental arena everyday,

1 simple ain't easy, and this is just a good example of
2 it.

3 MS. SUSAN HUTSON: I know.

4 MR. GREER TIDWELL: What I am trying
5 to get a hold of is a basic picture so that at least
6 I can participate in helping figure out what TVA's
7 role needs to be. This is just not an academic
8 exercise on my part.

9 MS. SUSAN HUTSON: Correct.

10 MR. GREER TIDWELL: I mean, if it's a
11 consumption in the household that's really changing,
12 and I am hearing that's not the issue.

13 MS. SUSAN HUTSON: That's really not
14 an issue.

15 MR. GREER TIDWELL: It's more
16 household but not in per household change
17 significantly.

18 MS. SUSAN HUTSON: Correct.

19 MR. GREER TIDWELL: I did hear, I
20 think, that there is a range of consumptive uses
21 among the states, but thought I saw a number of the
22 range going from around 50 up to 500.

23 MS. SUSAN HUTSON: I think how Gene --
24 okay. I think the statistics that Gene pulled out
25 are in a whole other dimension, and that's important

1 that you do that. I think what we did is took the
2 total consumptive use for each of those states in '95
3 and divided that total or consumptive loss, divided
4 that by the number of people.

5 MR. GREER TIDWELL: Right.

6 MS. SUSAN HUTSON: And rather than
7 saying this is a per capita use, he was saying this
8 is sort of the consumptive loss per state, and that
9 that loss varies from state to state.

10 The fact that Mississippi is an
11 agricultural state, you know, and has the
12 agricultural, you're going to get a very high
13 consumptive loss per person versus Tennessee where
14 most of that water is put back. So then it was that
15 44 versus the 528, but that wasn't meant to
16 imply that people are only drinking 44 gallons per
17 day, and that's the confusion of the terms, the
18 multiple uses of the term.

19 MR. GREER TIDWELL: I apologize for
20 introducing that confusion, Greer. I was sort of
21 interested myself in what the consumptive losses were
22 in the various states. So just how much water is
23 each state using in gross terms, and that's what
24 these numbers were, the consumptive numbers for all
25 purposes, the consumptive losses by the state. And

1 then I took that and just divided it by the
2 population that was given for the state and came up
3 with that number just for comparison purposes.

4 MR. JIMMY BARNETT: But that includes
5 industry also, right?

6 MR. GENE GIBSON: It covers
7 everything. That's why the number seems too high, as
8 I indicated, this is so high because there's a lot
9 more agricultural and 100 percent of that is a
10 consumptive use or a consumptive loss to the system.

11 MR. BRUCE SHUPP: Ed and then Steve.

12 MR. ED WILLIAMS: If we could -- if
13 you could wave the magic wand, Gene, in a perfect
14 world and get a Valley wide approach, what would be
15 the ideal structure for governing water use, if you
16 could just design something from scratch?

17 MR. TOM LITTLEPAGE: Plead the fifth.

18 MR. GENE GIBSON: I don't know.
19 Obviously, I mean, there needs to be an ongoing
20 collective collaborative effort on this. Again, I'm
21 not sure. I don't know what the answer to that is.
22 I wish I did, you know, but --

23 MR. ED WILLIAMS: If you could wave
24 the wand, what would you do?

25 MR. GENE GIBSON: I don't know really.

1 I mean, I don't know.

2 MR. ED WILLIAMS: Eliminate all state,
3 county, and local government?

4 MR. GENE GIBSON: Yes, to start with.
5 It's very difficult, you know. It's like someone
6 told me one time, you know, there's really two things
7 you don't want the public to see, and that's making
8 sausage and the other one is making laws. You know,
9 the way they do this stuff, I mean, the politics gets
10 in there and it's very difficult.

11 MR. BRUCE SHUPP: Tom. Here's a man
12 with experience that can answer that question.

13 MR. TOM LITTLEPAGE: Is this on? I
14 think part of the answer here is to understand where
15 TVA begins to lose some ability to establish
16 regulatory oversight. I use that term very loosely
17 obviously.

18 In terms of trying to regulate how
19 water will be used, I think you're going to have a
20 hard time overcoming the states' abilities to do
21 that. Where I think TVA can step out and begin to
22 make -- be a force politically is trying to put some
23 policy recommendations together, and the one that
24 stands out to me is interbasin transfers.

25 You know, to look at -- and I was

1 going to ask you, how much -- do we know how much
2 interbasin transfer is going on now within the
3 system?

4 You know, giving the attacks that
5 you're going to have from Atlanta or the other
6 metropolitan areas as they grow, what's the baseline
7 that we're starting with? How much water is leaving
8 the basin now?

9 The history of this is you really
10 don't have a regulatory approach to look at the
11 amounts of water but maybe looking at an ability to
12 try to measure that and track it, and then as a
13 policy looking at from a holistic watershed approach,
14 beginning to establish a baseline of saying that we
15 need to make sure we limit because the water, once it
16 leaves the basin, it never gets reused. You use that
17 water once and it's gone.

18 So an opportunity in terms of looking
19 at where TVA might fit in is to be able to take a
20 lead role and encouraging the states to do the same
21 to treat these basins as integrated entities and work
22 to limit those kind of things.

23 MR. GENE GIBSON: I think obviously
24 there's other things that we could do in terms of
25 encouraging conservation. If you look on TVA's web

1 site, there's very little about conservation of
2 water, that sort of thing.

3 If you look at like education, public
4 outreach, you know, educating folks on the value of
5 water, the impending water issues, that sort of
6 thing, drought management, we could institute or look
7 at potential drought management type policies and
8 approaches.

9 We could look at the various -- what
10 flexibility we do have in terms of establishing
11 policies for monitoring and collecting data. This
12 data that we have got to do this study, we had to
13 work with the various states. We got the data
14 actually from the various states, and the states all
15 have the information in different formats. Their
16 permitting requirements are all different.

17 So we're sitting here trying to
18 collect all of this stuff on a watershed basis that
19 we're getting from the various states and it's all --
20 it's a collaborative type effort, but it would be
21 nice if we did have something like that in an ongoing
22 way.

23 Again, the question is probably going
24 to be one of cost. Is it worth going ahead and
25 continuing to try to keep the databases up-to-date

1 and monitoring that or do you periodically take a
2 snapshot and do like we did the past 18 months or so,
3 which is every five years or so forth you go out and
4 you take another snapshot of how much water is being
5 consumed and you say, they, are we to that critical
6 point where we need to sort of monitor this on a
7 yearly basis, you know, that's a question that one
8 would probably ask, you know, what's the smart thing
9 to do?

10 MR. BRUCE SHUPP: One of the things I
11 think -- one of the answers to your question, Greer,
12 or Ed, I'm sorry, is if you don't have the full
13 commitment of the Governors of the states involved in
14 that Compact development, and I mean the full
15 commitment, I think that's one thing that Tom can --
16 certainly can concur with is that the agencies that
17 aren't serious, the players aren't serious, you're
18 never going to get it done.

19 So the first thing you need is the
20 absolute commitment of that Governor to say, guys,
21 we're going to make this work. You agency -- water
22 agency people get in there and make this thing
23 serious, and if it's not you spin around and around
24 and around and around and around like the ACT and ACF
25 went for the last decade, and I think that's an

1 absolute necessity.

2 Steve.

3 DR. STEPHEN SMITH: A couple of
4 questions. Is it not true that if you were looking
5 at consumptive patterns that you would -- and you
6 were maybe trying to limit those or discourage them
7 if you were concerned about it, that wouldn't you
8 want to extract a higher penalty further up the
9 watershed than you would, because it would seem to me
10 that if somebody was a high consumptive user on the
11 eastern part of the system, it would have a much more
12 dramatic effect than somebody on Kentucky Lake.

13 MR. GENE GIBSON: That's true. The
14 value of the water the higher up you go is more
15 valuable if you look at it from a lost benefit
16 standpoint or a benefits for goal.

17 Obviously, if you can take that drop
18 of water up on the upstream and generate power with
19 it nine times as you go down, then the impacts of --
20 the value of the water in those upper tributaries is
21 going to be higher than that down below.

22 DR. STEPHEN SMITH: Plus there's --
23 you know, you have got the power component, you have
24 got how many millions of people who flow pass or
25 whatever en route to hundreds of thousands as it

1 moves downstream.

2 So it would seem to me that if you
3 were to be developing some sort of a strategy about
4 sensitivity to consumptive use, it would be -- there
5 would be a higher degree of sensitivity further up.

6 The other thing is, and you
7 mentioned -- you sort of flashed by this study that
8 TVA was doing -- you were talking about the pinch
9 points and other things like that.

10 MR. GENE GIBSON: Uh-huh.

11 DR. STEPHEN SMITH: Do I understand
12 your term pinch points as are there areas at which
13 certain levels of withdrawal would -- I mean, have
14 you already -- has TVA already identified the
15 critical points at which if withdrawal was happening
16 that it would begin to constrain mission in various
17 areas?

18 I mean, I would imagine that there is
19 some number that you get below that you would -- the
20 Agency would potentially really be sensitive to the
21 point that they couldn't carry on their mission
22 because you're getting it. And I don't know whether
23 we're, you know, this far from that point in some
24 areas or this far from that point, and it would seem
25 to me that the relative intensity of what we would

1 want to think about recommendations and everything is
2 going to depend on, you know, the margin of safety we
3 have before you begin to get into mission critical --

4 MR. GENE GIBSON: Right. And in this
5 report we are going to be attempting to identify
6 those communities or regions or whatever that are
7 currently experiencing water shortage problems, you
8 know, due to various reasons, as well as those that
9 we anticipate having emergent water supply problems
10 in the future. So those are going to be pointed out
11 in that report.

12 DR. STEPHEN SMITH: Are there -- in
13 our deliberations over the next 24 hours, is there
14 any information like that that we should be aware of?

15 I mean, I'm generally aware of what's
16 going on at Fairfield Glades up on the plateau about
17 some of those issues and things like that, but I'm,
18 you know, curious, are there other -- because, I
19 mean, at one point they were looking at trying to
20 come down and grab water out of Watts Bar and bring
21 it up onto the plateau, and they have also talked
22 about damming, I guess, scenic rivers and other
23 things.

24 MR. GENE GIBSON: Well, I think, yeah,
25 that's probably one of the areas that we will have

1 highlighted there that's a potential pinch point, you
2 know, but we're not going to be attempting to
3 identify in the report potential solutions or
4 anything like that.

5 We're just pointing out that, hey,
6 where are the pressure points?

7 And if you're going to, say, apply
8 resources and if you're looking at it from an
9 economic development standpoint or growth strategy
10 standpoint, we need to know. The Valley -- TVA needs
11 to know where are those areas where there's going to
12 be potential problems so that we could focus whatever
13 limited resources that we decide to apply to this
14 particular area to those particular communities and
15 work with them. So I don't know if I am getting
16 there or not.

17 DR. STEPHEN SMITH: Yeah. I mean, I
18 don't know if that information is available in a
19 timely way where we can actually factor it into any
20 sort of recommendations that we're going to make
21 because I am not cued up to know, you know, where we
22 are, again, in that sort of safety margin, but I
23 did -- I am getting the impression from some of the
24 data and from my limited understand of this is that
25 as a general rule we may consume a whole lot of water

1 but the majority of it is being returned back into
2 the system.

3 MR. GENE GIBSON: Right.

4 DR. STEPHEN SMITH: And, therefore,
5 we're probably not having a lot of critical areas
6 other than, you know, like I said, the plateau, but I
7 don't know -- so, you know, I don't know if that
8 would basically call upon us to think about unique
9 strategies.

10 One other thing is, how much has the
11 sort of water side engaged with the energy side to
12 basically recognize that there are, you know, gains,
13 there's two-fers that can be gained from horizontal
14 axle washing machines because you get both a
15 significant energy savings and then you also get a
16 significant water savings.

17 My understanding from talking to some
18 of the folks who pump water around is that the motors
19 that pump that water use an enormous amount of power.
20 There are -- you know, so standing there with, you
21 know, 45 minutes in your shower with a high flow, you
22 know, shower head is a -- you know, you're using
23 water and you're heating water, but then also you
24 have got to pump that water to where it's going for
25 some folks and things like that.

1 So I'm just curious about how much --
2 you mentioned conservation and the need for
3 conservation, it seems like you would also -- you
4 could also structure conservation on the energy side
5 with the water consumption and possibly look at
6 market transformation mechanisms to where you're
7 trying to deliver strategically things -- you know,
8 market incentives to get market transformation into
9 areas to decrease consumption and also could lead to
10 decreased energy use.

11 MR. GREER TIDWELL: Right. I think
12 that's a good point. I don't think we have done
13 probably enough of that, but I think that's -- that
14 might be something that must be --

15 DR. KATE JACKSON: I will do this one
16 for you if you want.

17 MR. GENE GIBSON: Okay. Go ahead. I
18 will delegate this one to Dr. Jackson.

19 DR. KATE JACKSON: I think the place
20 in which the water side, I will use your terms, these
21 are not my terms, the water side of the Agency has
22 engaged the power side of the Agency is in that
23 integrated management of the water flow and the water
24 quality issues associated with that flow.

25 So the primary opportunities for

1 improving the flow, the consistency of that flow, the
2 quality of the water, they're enormous opportunities,
3 and that is largely in how you begin to make the
4 trade-offs among the all-benefit areas. That's
5 clearly where ROS is.

6 I know that you have had some
7 briefings on sort of the thermal analysis, you know,
8 the hydrothermal. You make the trade-offs of putting
9 the lift pumps on in a cooling tower versus losing
10 hydro opportunities because now you're spilling to
11 get cold water someplace.

12 So there's been enormous engagement
13 there and incredible improvement in value of the use
14 of the water. Those are much more valuable than the
15 other side, much more valuable.

16 Now, have we completely ignored the
17 conversation side? No.

18 Have we done everything that SACE and
19 others would like us to do? The answer is no.

20 Now, we have looked for opportunities
21 to do that market transformation in the Southeastern
22 Energy Alliance, but we haven't pushed that as far as
23 we would like to, but I don't think we are the only
24 movers in that.

25 DR. STEPHEN SMITH: I know, but, I

1 mean, I -- and I understand that probably the initial
2 investments, bang for the buck, moving water through
3 the dams and how you manipulate the water for thermal
4 cooling and everything is much bigger, but it would
5 seem to me that there is a role to be played and I
6 don't even -- you know, I know you guys are going to
7 say, well, we don't want to get into micromanagement
8 with the distributors and the distributors are going
9 to say we don't want TVA managing us, but has anybody
10 gone up onto the plateau and tried to educate those
11 distributors that they have a role to play when
12 you're looking at water shortage issues in
13 encouraging appliances that use less water? Has TVA
14 seen that and also seen the efficiency values that
15 could be gained from doing that?

16 DR. KATE JACKSON: We have done some
17 of that. We have not done nearly as much as we
18 probably could do.

19 I will add another piece of that,
20 which is out of the auspices of this, but maybe more
21 importantly are how are quality issues associated
22 with various speed motors and pumps, which is exactly
23 what you're talking about, but they feed back all
24 kinds of yucky stuff into the system and that power
25 thing is probably more valuable also.

1 So I think there are more than just a
2 couple of areas for that strategic engagement, if you
3 will. And, you know, the energy right program has a
4 piece of that, our water analysis does a piece of,
5 and we're working hard to integrate those, but I
6 think that there's room for improvement.

7 DR. STEPHEN SMITH: Energy right does
8 stuff on water?

9 DR. KATE JACKSON: They do things on
10 efficiency and some of that includes water, but it's
11 not strategically targeted for that.

12 MR. BRUCE SHUPP: I think we're a
13 little off message here.

14 DR. STEPHEN SMITH: I don't think it's
15 off message at all when you're talking about --

16 MR. BRUCE SHUPP: But we're off
17 message to the point, Stephen, that this is part of
18 the discussion for tomorrow, and I would like to get
19 into this tomorrow when we're actually all fresh and
20 ready to debate what is TVA's role. I think we're a
21 little off now at this time of the day.

22 Gene, I want to thank you for doing a
23 very good job. Thank you.

24 All right. The next thing on the
25 agenda on the guidelines, if there are no discussions

1 on the guidelines for tomorrow, that is, guidelines
2 for how we're going to handle our discussion
3 tomorrow, then essentially we are ready to adjourn.

4 Are there any discussion on the way we
5 have laid out the agenda to address the questions for
6 tomorrow?

7 FACILITATOR DAVE WAHUS: One of the
8 two of the questions that I asked you earlier this
9 morning -- there we are. What order -- is there --
10 do you want to take these questions tomorrow in the
11 order that they are listed now or is there a
12 particular order that you prefer to go in? Are there
13 some really easy questions that you can get done
14 with?

15 Another point. There are six
16 questions and there are four hours in which to
17 discuss them, so that's roughly 40 minutes per
18 question. Are there some of these that you want to
19 spend less time on or more time on?

20 It's your discussion and your
21 decision. I will just try to keep you to whatever
22 you decide.

23 Jimmy.

24 MR. JIMMY BARNETT: I will just give
25 you my particular viewpoint.

1 FACILITATOR DAVE WAHUS: Good.

2 MR. JIMMY BARNETT: I like the order.
3 I think it was very good order. Secondly, I think
4 like No. 3 --

5 FACILITATOR DAVE WAHUS: Why don't I
6 number these so as we discuss these it will be easier
7 to --

8 MR. JIMMY BARNETT: I think No. 3 will
9 take a lot of time. I don't think No. 2 would take
10 that much time. No. 1 would probably take more than
11 No. 2. and No. 4, those take a lot of time. Nos. 5
12 and 6, that's a good question, I don't think they --
13 they could take all year or a short time. I think
14 No. 3 and No. 4 would take the most time, personal
15 opinion, but I like this order.

16 FACILITATOR DAVE WAHUS: So do I have
17 a disagreement -- any disagreements on the order?

18 MR. BRUCE SHUPP: No disagreement on
19 the order, but I think No. 2 is going to be a tough
20 one. Steve was really getting into part of that
21 right there, and I think there's going to be a lot of
22 other aspects of feelings about what the role should
23 be and I think that's going to be tough one, too. So
24 we may have Nos. 2, 3, and 4 that represent the most
25 amount of time.

1 FACILITATOR DAVE WAHUS: Do you want
2 to limit the discussion on 1 and 2 to a certain
3 amount of time? Like if we gave them all equal time,
4 it's 40 minutes per question. We certainly don't
5 want to get to No. 3 and not have any time left for 4
6 and 5.

7 Paul?

8 DR. PAUL TEAGUE: What we're here for
9 is to decide No. 2, that's the crux of the whole
10 operation. So put it wherever you want to, but that
11 is the final analysis.

12 FACILITATOR DAVE WAHUS: How do you
13 want to deal with it?

14 Greer.

15 MR. GREER TIDWELL: You're going to
16 love this. Can we discuss it in that order but save
17 the final resolution on No. 2 until a little bit
18 later?

19 I don't know that I can answer No. 2
20 until I hear a little bit about what the objectives
21 of this partnership is. So we can kind of bring it
22 up, hit it a little bit, and then put it again back
23 in No. 5.

24 FACILITATOR DAVE WAHUS: Sure. One
25 thing you need to keep in mind is at 10:00 or 10:30

1 tomorrow we're going to have a public meeting, 10:30.

2 Any discussion that you have in the
3 morning you certainly want to bring up your points,
4 but you don't want to draw any final conclusions
5 until after the public meeting or after the public
6 has had an opportunity to provide input.

7 So as you draw some conclusions and
8 have your discussions, after lunch we will come back
9 and we will at least quickly go through anything that
10 you -- any conclusions that you might have come close
11 to drawing in the morning and we will revisit those
12 so that you can decide as a result of listening to
13 the public that you still have the same opinion or
14 have you changed your mind and do you want to go a
15 different direction with your conclusions. We want
16 to give the public an opportunity to affect your
17 opinions, should they be able to do that.

18 So I am not hearing any definitive
19 suggestions on time other than on the first one I am
20 going to try to keep the discussion a little bit more
21 brief, we're going to touch quickly on the second
22 one, and then we're going to spend a little bit more
23 time on Nos. 3 and 4 and we will see how it goes.

24 MR. BRUCE SHUPP: That's what I was
25 going to recommend, then come back to 2.

1 FACILITATOR DAVE WAHUS: Then we will
2 come back to 2 at the end. Once we reach 40 minutes
3 on any individual one, I am going to start
4 encouraging you to draw some quick conclusions so we
5 can go on. We certainly want to address all of the
6 issues and be able to come to No. 2.

7 Okay. Mr. Chairman, if Dr. Teague
8 doesn't object, I have nothing further that we need
9 to discuss. Now, he may wish to wait until 4:30 to
10 adjourn.

11 MR. BRUCE SHUPP: Just to stay on
12 time.

13 FACILITATOR DAVE WAHUS: Just to stay
14 on time.

15 MR. BRUCE SHUPP: He's a stickler for
16 that, there's no question about that.

17 MS. JULIE HARDIN: I vote to stay here
18 until 4:30.

19 DR. PAUL TEAGUE: They are picking on
20 me again, poor me.

21 MR. BRUCE SHUPP: Okay. That's the
22 game plan. Any other comments about today or
23 tomorrow? TVA?

24 FACILITATOR DAVE WAHUS: One more
25 thing, if I might. I forgot to tell you, if you

1 recall at the last council meeting Laura Duncan was
2 set up here in the front with a computer and she
3 captured not the verbatim discussion but she captured
4 the themes of what you were saying and it was focused
5 up on the screen, we're very fortunate that Laura is
6 back here today. She was convinced to come back for
7 this next meeting. She's going to be doing the same
8 thing tomorrow morning.

9 Don't expect verbatim issues or
10 verbatim up there, but we're going to try to catch
11 the theme of what you're saying. So if we don't
12 capture it right, then that's -- tomorrow morning as
13 we go through the discussion that's the time for you
14 to bring it to our attention and we will make what
15 changes we need to make, keeping in mind that our
16 court reporter still will be capturing your verbatim
17 discussion so we can go back to that.

18 Thank you.

19 MR. BRUCE SHUPP: Don't jump. The
20 good news is we have dinner tonight at the Blount
21 Room over at the Marriott. Even better news is that
22 we have no fancy guest coming, no program, we can
23 come informally, relax, and have a good time, no coat
24 and tie is needed at all.

25 The bad news is that we really ought

1 to at the dinner table tonight kick around some of
2 these things and get a head start on tomorrow, so
3 that's the bad news.

4 Would anybody like to tell us where we
5 get a bus back to the hotel?

6 MS. SANDY HILL: Right here, there's
7 two vehicles to drive you guys back. They are not
8 supposed to be here until 4:30.

9 MR. BRUCE SHUPP: Thank you very much.
10 Adjourned.

11 END OF THE FIRST DAY

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