

IN RE: SAVANNAH RIVER COMMITTEE MEETING

Meeting of the Savannah River Committee, before W. Stephen Walker, Certified Court Reporter, B-572, commencing at 9:05 a.m., on the 22nd day of September 2006, at Third Floor, 600 East Bay Street, Savannah, Chatham County, Georgia.

APPEARANCES:

COMMITTEE MEMBERS PRESENT: MR. BRAYE BOARDMAN
MR. GUS BELL
DR. CAROL A. COUCH, Chair
MS. REBECCA SULLIVAN
COMMISSIONER NOEL HOLCOMB
MR. JOE TANNER
MS. MOLLY TAYLOR
MR. STEPHEN SPITZ
MR. MICHAEL G. McSHANE
MR. DEAN MOSS
SENATOR ROBERT L. WALDREP, J.
MS. ELIZABETH HAGOOD

PARTICIPATING STAFF:

MS. DOROTHY PAYNE
MS. LINDA MacGREGOR
MR. ALTON BOOZER
MR. NAP CALDWELL
MR. HANK STALWORTH
MR. JOHN CLARKE

COURT REPORTER:

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1 DR. COUCH: Good morning, everyone.

2 Senator Waldrep, maybe we could spend a moment
3 just for -- I think largely for purposes of those attending
4 today, just reintroduce ourselves to one another and talk
5 about who we have on our mutual teams. So I don't know if
6 you would care to start with the introductions.

7 SENATOR WALDREP: Well, I'll let everyone go
8 around the room. We'll start here with Elizabeth.

9 MS. HAGOOD: Okay. I'm Elizabeth Hagood and I
10 chair the DHEC Board.

11 SENATOR WALDREP: I'm Bob Waldrep and I am
12 appointed by Governor Sanford to be on the Water Committee.

13 MR. MOSS: I'm Dean Moss with the Beaufort-Jasper
14 Water and Sewer Authority.

15 MR. McSHANE: Good morning. I'm Mike McShane. I
16 chair the South Carolina BNR.

17 MR. SPITZ: I'm Steve Spitz. I'm a professor at
18 the Charleston School of Law.

19 MS. TAYLOR: I'm Molly Taylor and I'm with the
20 law firm of Willoughby & Hoefer in Columbia, South
21 Carolina.

22 DR. COUCH: Joe, would you like to start on our
23 side?

24 MR. TANNER: Sure. I'm Joe Tanner. I'm a member
25 of the Committee from the state of Georgia.

1 MR. HOLCOMB: I'm Noel Holcomb. I'm the
2 Commissioner of the Georgia Department of Natural
3 Resources.

4 MS. SULLIVAN: I'm Rebecca Sullivan. I'm counsel
5 to Governor Perdue.

6 DR. COUCH: And, again, Carol Couch,
7 Environmental Protection Division Director.

8 MR. BELL: I'm Gus Bell, president of Hussey,
9 Gay, Bell & DeYoung, Savannah, Georgia.

10 MR. BOARDMAN: Braye Boardman, Augusta, Georgia,
11 appointee of the Governor.

12 DR. COUCH: Excellent. Well, thank you. I think
13 in front of you is a draft agenda that we shared between
14 the two teams, and maybe the first order of business here
15 would be just to confirm that this is an acceptable order
16 for our business today.

17 SENATOR WALDREP: It appears fine. I think
18 everybody has had a chance to look at it yesterday and
19 today. And so we are looking forward to your
20 presentations.

21 DR. COUCH: Excellent. Okay. We have in the
22 morning a series of presentations that we in our last
23 meeting had determined to be important for us as a
24 foundation of information to begin our conversation about
25 forming an agenda, identifying process, time table, and the

1 specific opportunities for some progress. And then our
2 lunch break is at 11:30 in the afternoon.

3 You might recall that it was also important for
4 the two committees to begin forming an understanding of
5 each other's context for water authorities and statutes.
6 So Rebecca Sullivan will be doing the presentation for
7 Georgia.

8 Who will be --

9 MR. McSHANE: Professor Spitz will do it for
10 South Carolina.

11 DR. COUCH: All right. Well, if there is no
12 modification to the agenda, why don't we just leap right
13 in. The first presentation on the agenda is information
14 with background on hydrogeology, but also a report from the
15 U.S. Geological Survey on the modeling scenarios that
16 continue to be worked on.

17 And I guess at this point I'll turn this over to
18 John Clarke. Your name is on the agenda. Would you care
19 to introduce Dorothy?

20 MR. CLARKE: Okay. I'm John Clarke. I'm with
21 the Georgia USGS office. I have been involved with the
22 Sound Science Initiative over the past six years or so.
23 Today we are going to hear from Dorothy Payne, who is our
24 lead groundwater modeler on the study, and she is going to
25 give you some insight into what exactly happens in

1 saltwater situations at Hilton Head Island, and I think you
2 will find her talk very exciting.

3 MS. PAYNE: I'm sorry; the mouse just went out on
4 me. Oh wait, maybe I got it back.

5 DR. COUCH: And, Dorothy, I guess I would
6 encourage any questions in your presentation. You will
7 accept questions as we go along here?

8 MS. PAYNE: Oh yes, absolutely. Yes, please ask
9 questions as I go along.

10 Okay. First, I want to thank you all for the
11 opportunity of presenting our finding to your group. I
12 think that you will find the results of our study will help
13 you understand the groundwater hydrology in the area
14 better. And, again, please ask questions as we go along.

15 I'm going to be presenting the results of a study
16 that the USGS did its part in the Georgia Coastal Sound
17 Science Initiative, which was a multi-year project in which
18 we were looking at in a general way how what's going on
19 with the groundwater resources in Coastal Georgia. And the
20 eventual use of this information is to help the managers --
21 a lot of resource managers make better decisions.

22 And one of the things we focused on in particular
23 was the saltwater intrusion problem in Coastal Georgia in a
24 couple of different areas. Today I'm going to focus on

1 some of the work that we did with the saltwater intrusion
2 that is occurring in the Hilton Head Island area.

3 Before I go into any of the background
4 information and our technical findings or the technical
5 details, I want to just say what the major findings of this
6 study are just to lay this all out at first.

7 First of all, the local hydrogeology in the
8 Chatham County-Beaufort County area makes the area prone to
9 saltwater intrusion. And that's actually something we have
10 known for a while, but some of the data that we collected
11 and some of the work that we did further supports this
12 finding.

13 Another point I want to make is that pumping in
14 both the Chatham County, Savannah area, as well as in
15 Beaufort County, Hilton Head Island area, pumping for both
16 of those areas contributes to the saltwater intrusion
17 problem. So it's not just one area or the other that's
18 causing the problem.

19 The other thing I want to point out -- and this
20 is something that has come up a few times -- is that the
21 science doesn't really lend itself to us specifically
22 saying -- the science doesn't lend itself to determining
23 specifically amount of the saltwater intrusion problem is
24 caused by pumping in one area versus another area. And the
25 reason for that -- and I'm not going to go into any of

1 these details because it's pretty complicated -- but the
2 hydrogeology in the area is very complex and the processes
3 that are occurring are pretty complex.

4 So what that means is it's not really an additive
5 or simple linear type problem. You can't -- for example,
6 if you have pumping in two areas, area "A" and "B", that
7 both contribute to saltwater intrusion in another area, the
8 way the problem works and the way the area works means that
9 if you take the sum of what the pumping in area "A" would
10 cause by itself and what pumping in area "B" would cause by
11 itself, those would not add up to what they cause together.

12 It's a nonlinear thing. Okay? These things
13 don't just add up in your average arithmetic way. So it's
14 a very complicated sort of a system and processes that are
15 occurring. So that's why it's really hard to ferret out
16 exactly, you know, how much did one area versus another
17 cause of the existing problem.

18 Another finding from this study is that it would
19 probably take pretty substantial reductions of pumping in
20 both areas, the Savannah area as well as the Hilton Head
21 Island area, in order to stop the growth of these saltwater
22 plumes.

23 And then the last finding is sort of a corollary
24 to this, is that even if you turn off all of the pumping in

1 both areas, the plume is going to linger there for a while.
2 And I'll show you some results which illustrate this.

3 Okay. So here is our study area. The things
4 that I want to point out -- I'm going to try using this
5 mouse and see what happens. Okay. So this is the area that
6 our model covered but, really, we focused our detail in
7 what we are calling the study area. So the study area is
8 enlarged here. And so here's Chatham County. Here's
9 Southern Beaufort County. And here is Hilton Head Island.
10 And I'm going to be mentioning, as well, and I'll show it a
11 couple of other times, BFT-0315. It's just a particularly
12 well-located and long-studied well, and I'll show you some
13 of the data that has come out of looking at that well.

14 Saltwater intrusion has been around in the area
15 for quite a while. Back in the late 19th Century is when
16 they first started noting saltwater intrusion as one of the
17 first wells was going in in the area. In Beaufort and
18 Parris Island area saltwater -- shortly after wells had
19 been put in in those areas they started to see saltwater
20 intrusion. And starting in the 1980's, that's when they
21 started to see saltwater intrusion coming in at Hilton Head
22 Island. So we know the area is prone to saltwater
23 intrusion. It's been prone to saltwater intrusion for a
24 long time, even before there was as much pumping as there
25 is during modern times.

1 I want to say a few words about the Georgia
2 Coastal Sound Science Initiative. This was a series of a
3 scientific a feasibility studies that were designed to look
4 at saltwater intrusion and some of the coastal groundwater
5 issues. And there are a lot of different agencies and
6 groups involved with this, both in the scientific and
7 technical side of things as well as in our Technical
8 Advisory Committee, which was sort of a group that had
9 oversight over the work that we were doing. And some of
10 the participants included -- well, of course, Georgia EPD
11 was involved. South Carolina DHEC was involved. A lot of
12 the local industries were involved, some environmental
13 groups and representatives, as well as some universities.
14 So there are a lot of people involved in the Coastal Sound
15 Science Initiative.

16 As far as what we were doing in the USGS
17 technically, as well as some of the other agencies that
18 were involved with this technically, we did some offshore
19 drilling. We looked at some of the saltwater intrusion
20 processes that are occurring in the offshore area, offshore
21 of Hilton Head Island.

22 There was also a lot of work done on looking at
23 alternative water supplies to the Upper Floridan aquifer.
24 And, actually, I probably should have said that at first.
25 We are focusing on the Upper Floridan aquifer, the most

1 important productive aquifer in this particular area. So
2 one of the things that the Sound Science Initiative did was
3 to look at other sources of water to replace the Upper
4 Floridan aquifer. And the Upper Floridan aquifer is also
5 where we are seeing saltwater intrusion problems.

6 We also did a fair amount of monitoring and put
7 in some new monitoring. South Carolina DHEC put in a lot
8 of monitoring wells in the Hilton Head Island area to look
9 at -- specifically to look at the saltwater entering the
10 aquifer.

11 And then, finally, we did some groundwater flow
12 and solute-transport modeling, I'm going to show you some
13 of the results of this modeling and explain why we did this
14 modeling.

15 Okay. This schematic shows the conceptual model
16 or some aspects of the conceptual model for the saltwater
17 intrusion in this particular area. So before there was
18 much pumping in the area, during predevelopment times, the
19 Upper Floridan aquifer flowed from the inland area to the
20 coastal area and it probably discharged freshwater in this
21 direction, discharging into, you know, the offshore area or
22 into some of the sounds, maybe Calibogue Sound.

23 The Upper Floridan aquifer -- on top of the Upper
24 Floridan aquifer is this confining unit, and this confining
25 unit generally protects the Upper Floridan aquifer from

1 saltwater entering the aquifer. And during modern times
2 when the pumping has increased because of increased
3 populations in the area, what pumping does is it lowers the
4 water level, and that's what this blue dash line
5 represents.

6 So when you do a lot of pumping it's going to
7 lower the groundwater levels, and what that's going to do
8 it's going to change the pressure in the aquifer and how
9 the pressure relates to overlying surface water bodies, for
10 example, the Atlantic or some of the sounds.

11 What happens is when the pressure reverses you
12 can get saltwater -- instead of having freshwater exiting
13 and discharging into offshore areas, now you can have
14 saltwater entering the aquifer, for example, and this
15 picture shows one of the conceptual models, one of the
16 things that we're looking at in the Hilton Head Island
17 area, and that is where the confining unit is either thin
18 or has been completely eroded; and so you have more or less
19 a direct window from the saltwater source into the aquifer.
20 And because you have the flow direction now moving toward
21 these areas where you have a lot of pumping, saltwater is
22 going to be moving toward your production wells.

23 The other thing that is shown in this picture --
24 and I'll show you another schematic that shows it -- is
25 that even where you don't have the confining unit

1 completely eroded you can still have saltwater coming into
2 the confining unit, and that's what we're showing by this
3 little area here. And the next schematic, I think, will
4 pick up on this a little bit better. No.

5 Anyway, we know there are -- from this study we
6 know there are certain areas where the confining unit above
7 the Upper Floridan aquifer is either thin or has been
8 completely eroded. There was some seismic work that was
9 done offshore and in some of the sounds, and there was an
10 interpretive map of where the confining unit -- how thick
11 the confining unit is in the area.

12 And what this figure shows is some of the thinner
13 areas of that particular confining unit. So where you have
14 saltwater sitting over these thinner areas of the confining
15 unit, those are likely to be areas where you have a more or
16 less direct route for the saltwater to get into the
17 aquifer.

18 And you can see here is Hilton Head Island, and
19 here is Pinckney Island right here, and there's a big area
20 here where in orange the confining unit is less than 10
21 feet thick and in black the confining unit is completely
22 eroded. In addition, there are some areas offshore up
23 here, and this is where we did some of our drilling work,
24 where the confining unit is relatively thin. Okay? So

1 these are areas where there is a risk of saltwater moving
2 more easily into the Upper Floridan aquifer.

3 Now, there is another way that saltwater can
4 enter the Upper Floridan aquifer even if the confining unit
5 is not particularly thin. In areas where you have water
6 pumping there is a strong downward vertical gradient or a
7 strong pressure which makes the saltwater move more easily
8 in that downward direction and into the confining unit. So
9 even where you have relatively thick confining unit you can
10 still have saltwater moving into that confining unit and
11 moving downward toward the aquifer, and that's what this
12 schematic shows.

13 So in one case where you have -- this is the
14 confining unit here in the green. The pink represents
15 saltwater moving through. You can see saltwater moving
16 through this area here where there is a paleochannel that
17 has been cut through the confining unit.

18 In addition, over here you can see there are
19 areas where the confining unit is thicker and saltwater is
20 moving through the confining unit. It moves more slowly
21 and there is going to be a tradeoff between how thick the
22 confining unit is and how strong that downward vertical
23 gradient is. So even if you have a thick confining unit,
24 in an area where there is strong vertical gradient where

1 you have a lot of pumping you can have saltwater moving
2 down through the confining unit.

3 And some of the work that was done was in the
4 Tybee Island area, and this is a picture that shows -- in
5 the green box we've got chloride concentrations increasing
6 to the right, and this is the depth through the confining
7 unit. What this picture is showing is that in the
8 confining unit here, which is close to Tybee Island, we can
9 see higher concentrations of chloride at the top of the
10 confining unit and they're relatively high there. And as
11 they decrease down through the confining unit, what that is
12 indicating is that your saltwater is moving vertically
13 downward from above. And this is work that was done -- I
14 think it was on Bull Island, which pretty close to the
15 Savannah River.

16 All right. Going back to -- now I want to show
17 some of the data that's been collected. You can see this
18 is that monitoring well I was telling you about, BFT-315 on
19 the northern end of Hilton Head Island. This one was
20 monitored for many years and you can see that from 1974
21 into the mid '80s the chloride concentration was observed
22 continuously and it was observed to be increasing. And
23 this dash line indicates a 250 mg/l limit. That's the
24 drinking water standard -- EPA drinking water standard.
25 And so what this is showing is that by the early 1980's you

1 start to see some of the wells on the northern end of
2 Hilton Head Island -- the salinity is above the drinking
3 water standard.

4 Why does that not show up? Something is not
5 working with this figure, but we can see part of it. So
6 let me just tell you what this means. Okay. Here is on
7 the northern end of Hilton Head Island right here. Here is
8 Port Royal Sound. Here is the Colleton River, and here is
9 Pinckney Island. You can see there are these -- these are
10 all public-supply wells in red and in blue, and there are
11 much more blue wells that are further down in this area
12 that happens to be blackened out.

13 These contours represent the chloride --
14 estimated chloride contours that have been interpreted
15 using the specific-conductive monitoring that South
16 Carolina DHEC has done. And you can see that a lot of the
17 wells -- the wells that are in red are the wells -- public-
18 supply wells that have already been contaminated with
19 saltwater. And the blue wells, which are outside of this
20 250 mg/l contour, those are public-supply wells that have
21 not yet been contaminated but, because of the inferred
22 shape of these plumes and the direction of their transport,
23 these particular wells in blue are the ones that are at
24 risk for future contamination.

1 So that both South Carolina and Georgia have
2 taken measures to address the saltwater intrusion problem.
3 And these measures include both limiting the use or
4 decreasing the use of the Upper Floridan aquifer to take
5 some of the stress off of that particular aquifer. And
6 those are in these particular counties, the counties that
7 are right around Beaufort County, Hilton Head Island.

8 In addition, they have encouraged and required
9 alternative water supplies, for example, using treating
10 effluent at golf courses for watering them on Hilton Head
11 Island. So there are a lot of these measures that have
12 been taken by South Carolina in order to reduce the amount
13 of stress on the Upper Floridan aquifer in hopes of
14 stopping or limiting that saltwater intrusion problem.
15 There is also an aquifer storage and recovery well that was
16 put in north of Hilton Head Island. So there are a lot of
17 measures that are being taken in order to try to reduce the
18 saltwater intrusion problem and reduce the use of the Upper
19 Floridan aquifer in the area.

20 In addition, Georgia implemented inert strategy
21 in 1997 and, again, they were limiting the use of water in
22 the counties nearest to the saltwater intrusion problem.
23 That would be Chatham County and Effingham County and Bryan
24 County. In addition, they have been reallocating water use
25 to other areas.

1 Okay. Now I want to show what some of the
2 effects of the implementation of these measures has had.
3 So on northern Hilton Head Island on the bottom you can see
4 from 1997 until 2006 those are the pumping rates on Hilton
5 Head Island. And you can see they have been declining
6 since 1997 due to these measures.

7 And what these graphs show up here, these are all
8 hydrographs. They show the water level through time. So
9 through that same scale of time you can see at these wells
10 on northern Hilton Head Island we can generally see an
11 increase, a rise in the water levels. So by decreasing the
12 pumping we are already seeing that the water levels are
13 recovering.

14 We have also looked in the Savannah area and we
15 don't have quite the detail on the pumping history, but we
16 have seen decreases in pumping in Chatham and the
17 surrounding counties since 1997. And we also see a rise in
18 the water level that's probably in response to decreased
19 use in the aquifer.

20 What does that mean for saltwater intrusion?
21 Well, what I'm showing you here, again, is on the bottom
22 it's Hilton Head Island pumping from 1997 until 2005. And
23 up here in this graph I'm showing what is called specific
24 conductance. Specific conductance is a measure of the

1 salinity in the water. So it's sort of a surrogate for
2 chloride concentration.

3 What you can see is that even with the decrease
4 in pumping, we are seeing an increase in the salinity on
5 the northern end of Hilton Head Island. BFT-1810 is
6 another monitoring well that we have been looking at for a
7 while.

8 Why is this occurring? Why is it -- you know, we
9 have taken these measures to decrease the pumping. Why is
10 it that the chloride levels are still increasing? Well, it
11 could be for a number of reasons. One is that the chloride
12 -- the saltwater, that once it gets into the aquifer, it
13 moves really sluggishly and is a lot slower to respond than
14 water levels. So whereas you could change pumping and have
15 an immediate effect on the water levels, the chloride
16 levels are going to be much much slower in responding.
17 It's just part of the complexity of a system that has both
18 freshwater and saltwater in it.

19 Another reason is that it's possible that the
20 measures that have been taken so far are not substantial
21 enough to stop the saltwater intrusion, to stop saltwater
22 from entering the aquifer and moving in the direction
23 toward the pumping wells. And we looked at some of these
24 issues when we did our modeling; and so that's what I'm
25 going to move on to.

1 Okay. And I'm going to talk about the
2 groundwater modeling that we did. And before I show you
3 any of the results, I just want to explain why we do
4 groundwater modeling. As I said, these systems are pretty
5 complex and in order to incorporate all we know about a
6 system, all the data, all the complex processes that we
7 know, we use these models sort of as a super calculator in
8 order to calculate rates of movement and concentrations of
9 salt in the groundwater. So you can think of this as a big
10 calculator.

11 One thing to remember is that, no matter how much
12 data we have, the model is going to be limited by that
13 amount of data and how well we know that data and how well
14 we have conceptualized the system. So everything we know
15 we put into the model. Where we have gaps the model is
16 going to also have gaps. And we try to infer what might be
17 going on in those gaps, and in order to do that we have to
18 make a lot of assumptions. So whenever you are looking at
19 model results I just always like to tell people that you've
20 got to interpret those model results in light of what you
21 know about the data and how well you know the system.

22 But these models are useful. They incorporate a
23 lot of information that we can't do just within our heads
24 or on the back of an envelope. And we can use them as
25 what-if tools. We can use them to say, well, if this is

1 what our system looks like, let's say we change it by
2 reducing pumping in this area or increasing pumping in
3 another area or moving it, what's going to happen in the
4 system, and give us a general idea of what will happen with
5 those types of changes.

6 And, as I said, the model has these limitations.
7 You have to know what those limitations are. You have to
8 know about the data that goes into it and you have to know
9 about sort of, you know, your conceptual model and how well
10 do you really know -- how well are you conceptualizing
11 what's going on in the area. And even though they have
12 these limitations, they do represent and our best and most
13 current understanding of the system.

14 All right. So we developed -- using a saltwater
15 transport simulator, we developed a model for this
16 particular area. And what this model does is it represents
17 the hydrology of the system where you have your source of
18 salt water and you have areas where the confining unit has
19 been.

20 We have pumping wells that are in this model.
21 And what we have tried to do with this model is calibrate
22 it by developing the history from predevelopment until the
23 year 2000 and try and get a good match on the water levels
24 and on the chloride concentrations in the system. So
25 that's essentially what our model is and that's how it's

1 based. It's based on all the information that we know of
2 to the year 2000.

3 What we did with this model, then, is to take
4 that and to do some what-if scenarios, and we wanted to
5 pose some of these what-if scenarios to the model to try
6 and get an idea of what would happen with the system if we
7 change things or to try and understand the system a little
8 bit better.

9 One of the questions that we ask of the model is
10 how do the pumping in each of the areas, in the Savannah
11 area and in the Hilton Head Island area, affect the current
12 distribution of saltwater. So it sort of gets at the
13 question of, you know, how much is pumping in these two
14 areas responsible for, you know, the distribution of
15 saltwater that we see today.

16 So what we did is we ran a couple of different
17 simulations. And in one simulation we turned off -- from
18 predevelopment until 2000 we turned off all pumping in the
19 Savannah area. So it's representing a simulation in which
20 there was never any pumping that occurred in the Savannah
21 area.

22 Then in the other simulation we turned off all
23 the pumping that ever occurred in the Hilton Head Island
24 area just to see what the relative effects of pumping in
25 those two areas would have on the resulting plumes.

1 Okay. What this map shows is -- okay, this dash
2 line, this is the simulated extent of the chloride plume in
3 the year 2000. And it's a pretty good representation of
4 the chloride values that we see in the area, probably about
5 as good as we can get. And so this is the extent of the
6 plume. And the dash lines inside here, that shows a higher
7 concentration. That's 10,000 mg/l. So that's pretty
8 concentrated saltwater. But the outside is the 250 mg/l.
9 So that shows roughly the extent of the plume in the year
10 2000.

11 When we ran the simulation where we turned off
12 all pumping for the whole history -- we turned off pumping
13 for the whole history of the development from 1885 to the
14 year 2000, that is what is shown in the purple colors, and
15 the different purple colors just show the different
16 concentrations. But if you look at the outside of that
17 purple -- the purple plumes, that shows the simulated
18 extent of the plumes in the year 2000 if there had never
19 been any pumping in Chatham County. So what this shows, if
20 you look at the dash line and the outline of the purple, is
21 the difference that would have occurred if there had never
22 been any pumping in Chatham County.

23 So you can see right off the top that there are a
24 couple of areas -- here is the Colleton River area and
25 there is a plume -- we think there is a plume that is

1 emanating from up here. You can see here is the outline of
2 the purple and here is where it is in 2000. And here is
3 Pinckney Island plume here. Here is the outline of the
4 purple. And here is where the plume is in the year 2000.
5 So you can see in these particular areas there is a
6 significant difference in where the plume extent would be
7 based on pumping in Chatham County.

8 Now, if you go over to this plume here on the
9 northern end of Hilton Head Island, the difference is a lot
10 smaller. This is what it would be -- this is the extent of
11 the plume in 2000, and this purple here is the extent of
12 the plume as if there had never been any pumping in Chatham
13 County.

14 Okay. Now I'm going to go to the next
15 simulation. In this simulation we turned off all pumping
16 in the Hilton Head Island area but left pumping on in the
17 rest of the model. So, again, what we're looking at, the
18 dash line is the extent of the plume in 2000, and the
19 purple shows extent of the plume in this particular
20 simulation. What we are showing here is that there is a
21 larger difference in the extent of a plume in the
22 simulation from 2000 in Hilton Head Island and in the
23 Pinckney Island plume area, but less of a difference over
24 in the Colleton River area.

1 So what does this tell us? This tells us that
2 pumping in the two areas, Chatham County versus southern
3 Beaufort County, pumping in Chatham County is going to have
4 a stronger effect on the plumes that are geminating from
5 the Colleton River and the Pinckney Island area, whereas
6 the plume on the northern Hilton Head Island area appears
7 to be more influenced by pumping in southern Beaufort
8 County. Okay? So earlier on when I said that pumping in
9 both areas affects the plume growth in Hilton Head Island
10 area, that's what I'm talking about, this sort of a
11 difference. Okay. And this is just sort of a summary of
12 that.

13 Pumping in the Savannah area may contribute more
14 to the plume growth in those western plumes, and pumping on
15 Hilton Head Island and in southern Beaufort County may
16 contribute more to the plume growth on Hilton Head Island.

17 All right. Another question we asked of the
18 models is what kind of reductions do we need to stop the
19 plume growth. In order to do this, what we did is we
20 updated the model to the year 2004. We just added the
21 pumping between 2000 and 2004 and checked to make sure that
22 the chloride levels look like they do in 2004.

23 So from the year 2004 out 100 years we tested a
24 variety of scenarios where we turned off pumping in
25 different areas. How much do we need to turn off in these

1 two areas in order to get the plume to stop growing? I'm
2 not going to show all of the results, but I think the
3 results that I show you will illustrate that it requires a
4 lot of reductions.

5 Okay. So now I'm talking about the Savannah
6 area. This is the area where we turned off pumping or we
7 adjusted pumping at various fractions of 2004 levels. And
8 this is what we call the Hilton Head Island area over here.
9 So those are the two areas that we were playing around with
10 pumping rates and reducing them from the 2004 rates in
11 order to simulate, try to get at how much reduction we
12 would need in order to stop saltwater intrusion.

13 Okay. So before I go any further, this is the
14 first -- this first slide, again we're showing the black
15 dash outline. Now, this is the extent of the plume in the
16 year 2004. Okay. So the black dash line, this is the year
17 2004 now updated. It looks pretty similar.

18 All right. If we allow pumping in both -- in the
19 whole model area, including those two areas, the Savannah
20 area and the Hilton Head Island area, if we allow that
21 pumping at 2004 rates to continue to the year 2104, this
22 orange line shows the extent of that plume. Okay? So you
23 can see that the plume has expanded. If we don't do
24 anything, it's going to continue to expand.

1 In addition, you can see there are other areas
2 where you get saltwater migrating through the confining
3 unit and into the Upper Floridan aquifer, for example, here
4 and then, as well, in this offshore area.

5 Now, if we reduce the pumping in both areas by 50
6 percent, so both in the Savannah area and the Hilton Head
7 Island area that I was showing you before, we reduce
8 pumping in both those areas by 50 percent of the 2004
9 levels, this blue outline here shows the extent of the
10 plume for that simulation in the year 2104; so 100 years
11 out.

12 So that's saying that if we reduce pumping in
13 both areas by 50 percent, okay, I think in the Savannah
14 area that would be 37 or 38 million gallons per day, and in
15 the Hilton Head Island area that would be -- let's see,
16 what did I calculate it -- 8.2 million gallons per day of
17 reduction in those two areas. Those are pretty
18 significant.

19 DR. COUCH: Dorothy?

20 MS. PAYNE: Yes?

21 DR. COUCH: Excuse me. I'm assuming that it's
22 probably just not shown on the figure, but is there a blue
23 extent on the offshore area that is just not shown?

24 MS. PAYNE: Yeah, actually, the next slide, --

25 DR. COUCH: Okay.

1 MS. PAYNE: -- we'll look at that, yeah. Okay.
2 So essentially with the significant reduction, 50-percent
3 reduction, you're still getting plume growth away from this
4 -- where the simulated plume existed in the year 2004.
5 Okay? So already we know it's going to take these
6 significant reductions.

7 The next slide I show was the same results that
8 I'm showing. What we have done is we have just zoomed out
9 so you can see better the distribution of these plumes.
10 Now, in the offshore area, if we maintain the pumping at
11 2004 rates, you can see in this offshore area we're getting
12 saltwater moving into the Upper Floridan aquifer. Reduced
13 by 50 percent in these particular scenarios, we're not
14 seeing the blue contour out here. So we're not seeing it,
15 if we use that 50-percent saltwater moving into the Upper
16 Floridan aquifer, out here. But you do see it in other
17 areas, as well, for example, around the Broad Creek area.

18 And another reason I wanted to show this is that
19 we know that in the Colleton River and Pinckney Island and
20 maybe even the Hilton Head Island area we've got these
21 areas where the confining unit is thin or completely
22 eroded. Thin in some places in the offshore area but not
23 quite as thin. So what's happening here is just through
24 time saltwater has leaked through the confining unit and

1 it's starting to get into the Upper Floridan aquifer in
2 this offshore area.

3 All right. Instead of showing you all three
4 contours, I'm just going to say -- I'm going to show all
5 three results -- or results from two simulations on this
6 one slide. So in this particular case pumping has been
7 turned off in the Savannah area and now we are just
8 incrementally reducing pumping in the Hilton Head Island
9 area.

10 So, again, the black dash line is the simulated
11 plume in 2004. The red line here is we are leaving pumping
12 on in the Hilton Head Island area, but in the Savannah area
13 it's been turned off. So you can see the plume sort of
14 shifts and moves toward -- you see the plume is moving
15 toward the Hilton Head Island area and is moving in a more
16 easterly direction.

17 Okay. And then the blue line shows if we reduce
18 pumping on Hilton Head Island, again Savannah area is still
19 turned off, the plume decreases in size and in some places
20 is within the extent of the plume in the year 2004, but in
21 other areas it's still outside of that area. So even with
22 100-percent reduction in Savannah area and 50-percent
23 reduction in Hilton Head Island area, we are still seeing
24 growth of the plume in certain directions.

1 Now, for this simulation we turned off pumping in
2 the Hilton Head Island area, and in the red I'm showing
3 pumping left on everywhere in the model, including in the
4 Savannah area. So you can see the plume shifts. So here
5 is the 2004 outline; the dashed line here is the 2004 plume
6 extent. The orange line is in the year 2104 if pumping is
7 turned off in Hilton Head Island area but is left on in the
8 Savannah area. So you can see the plume now shifting
9 toward the Savannah area and away from -- there is not much
10 plume growth when you turn off pumping in the Hilton Head
11 Island area. You can see the plume pretty much stays where
12 it is in the year 2004.

13 If we reduce pumping in the Savannah area by 50
14 percent, that's the blue line. So you can see the blue,
15 even if we turn off all the pumping in the Hilton Head
16 Island area and reduce pumping in the Savannah area by 50
17 percent, we're still getting growth of the plume in certain
18 directions, but in other areas it's not growing.

19 So this is telling us that in order to keep the
20 plume where it is present-day, we have to turn off almost
21 all the pumping in the area. It's a pretty significant
22 reduction that would have to occur, at least greater than
23 50 percent in both areas, in order to keep that plume from
24 moving.

1 Another question that we posed for the model is
2 can we actually get rid of the saltwater and sort of clean
3 up the aquifer and start from scratch. In order to test
4 this simulation we started with the conditions in the year
5 2004 and then we turned off pumping in both areas, both the
6 Savannah area and the Hilton Head Island area that I showed
7 you before, as well as in the entire model area, just to
8 see what the effect would be.

9 Okay. In this picture, again, I'm showing now,
10 instead of just the outline of the plume at the 250 mg/l
11 line, I'm also showing there are some smaller areas in here
12 that have dash lines. What that is showing is the highest
13 concentration areas of the plume. Okay? So that's at
14 10,000 mg/l. Okay? That's what these inner contours are
15 showing. So the black dash line is the distribution of the
16 plume in the year 2004. If we take out pumping in both the
17 Savannah and Hilton Head Island areas but leave pumping on
18 in the rest of the model area, that's what this orange line
19 represents here. That is the extent of the plume. So you
20 can see it's decreasing and it's shifting.

21 If we turn off pumping in the entire model area,
22 -- okay, I showed you early on what that entire model area
23 extends well into Georgia and pretty far inland into South
24 Carolina -- that's what this blue line represents. And 100
25 years out that's what the plume would look like.

1 So it's telling us two things. We can turn off
2 pumping, reduce pumping significantly; the plume isn't
3 going to move a lot. That's the major finding. You can
4 also see the high concentration still persists in these
5 particular areas. So if we turn off all the pumping the
6 plumes are very stubborn; they're just not going to wash
7 out that quickly, not within 100 years.

8 Okay. The other thing that this is showing is
9 that there is not much of a difference if you turn off
10 pumping in the entire model area versus just those two
11 areas. And what that is telling us is, yes, there is a
12 regional effect from pumping across the rest of the model
13 area, but it's not a huge effect. It's only going to
14 decrease the plume by a small amount. It's not going to
15 have a very big effect on whether this plume cleans out and
16 how fast it does so.

17 So, again, these are the conclusions from this
18 particular set of simulations. The plumes are going to
19 move really slowly, even with very large reductions in
20 pumping. And the effects of regional pumping are not that
21 significant compared with the pumping -- the closer pumping
22 in Savannah and Hilton Head Island area.

23 MR. MOSS: Dorothy?

24 MR. PAYNE: Yes?

1 MR. MOSS: Question. Let's assume that all the
2 pumping is eliminated. How quickly will the aquifer
3 recover to the point that the growth of the plume can be
4 stopped?

5 MS. PAYNE: Well, the simulation results show
6 that to stop the growth of the plume, even at 100 years, it
7 would take a significant reduction, more than 50 percent.

8 MR. MOSS: Let's just assume that that happens.
9 Water levels are going to recover when the pumping stops.
10 And as the water levels recover, the gradient decreases
11 and, theoretically, the movement of the plume should slow
12 and ultimately, once the gradient is restored to pre-
13 pumping conditions, ought to stop. How long would that
14 take to occur after all pumping stopped?

15 MS. PAYNE: You mean to get the saltwater --

16 MR. MOSS: No, not --

17 MS. PAYNE: The concentrations back to --

18 MR. MOSS: No, just to stop the movement of the
19 plume so that that next down gradient well can -- you know,
20 if necessary, could be used at some point in the future.

21 MS. PAYNE: Well, the results I'm showing here at
22 100 years out, I mean, I guess if you turned off all the
23 pumping everywhere, it would -- the plume would probably
24 stop growing. You're talking about kind of the slow
25 turning-around effect?

1 MR. MOSS: Well, it's moving at approximately
2 130, 140, 150 feet a year down gradient is what DHEC has
3 told us. If you wanted to stop that movement, stop the
4 growth of the plume, how long after the pumping was turned
5 off could you expect the water levels to rise back up to
6 the point where that growth would stop?

7 MS. PAYNE: Well, the water levels are going to
8 rise up pretty quickly. Okay? That's a pretty quick
9 response. The saltwater is going to take a little bit
10 longer. I'm not really sure how long. And, you know, once
11 I do these simulations, we'll look at year by year. But,
12 you know, definitely the saltwater movement is more
13 sluggish.

14 There are complex things going on. The saltwater
15 is generally concentrating at the bottom of the aquifer,
16 and that's what they're seeing in a lot of their
17 monitoring. So you can have movement in the upper part;
18 and saltwater, because it's dense, it's going to kind of
19 sit there. It may stop moving, but it may not, you know.
20 If it's advanced, it's 2004, like if you want to bring it
21 back -- you're just talking about stopping it where it is?

22 MR. MOSS: Yeah. I'm --

23 MS. PAYNE: I think if --

24 MR. MOSS: I'm not worried about getting it back.
25 I mean, it's --

1 MS. PAYNE: I don't know. We would totally have
2 to -- a couple of things that we have to do is we have to
3 choose a model to do this. We have to zoom in at a much
4 finer scale and look at that. And then we would also have
5 to look at very short time-step output.

6 MR. MOSS: Thank you.

7 MS. PAYNE: Okay. So, in summary, we know the
8 area is prone to saltwater intrusion, the aquifer there.
9 There are a lot of reasons why the area is prone to
10 saltwater intrusion. One is that the confining unit
11 sitting above it, it is very thin in some places. In
12 addition, because you have a saltwater source and you have
13 a lot of pumping, you can have a vertical downward gradient
14 which draws the saltwater into the overlying confining
15 unit.

16 Pumping in both the Savannah and Hilton Head
17 Island areas is going to contribute to the saltwater
18 intrusion problem, and it's going to be pretty difficult to
19 determine exactly how much pumping in each of those areas
20 contributed to the problem that we see today.

21 Substantial reductions would be required to stop
22 the saltwater intrusion, to stop the growth of the plume.
23 And if you want to get rid of the plume, it's going to take
24 a long, long, long time. It's pretty stubborn. If you
25 turn off all pumping everywhere, the saltwater is dense,

1 it's going to sit there, freshwater is going to flow over
2 it. It will gradually move off to the side.

3 In addition, you could still have a very low-
4 gradient area. Anyway, you could still have some saltwater
5 that would get into the Upper Floridan aquifer. There
6 might still be a source.

7 And, finally, I just want to emphasize that
8 modeling and monitoring, particularly monitoring, is really
9 important to sort of keep on top of this and to help
10 understand the system better so that you can help manage
11 the problem a little bit better. Again, the model is only
12 as good as the data that we've got and is our understanding
13 of the system. The more we can monitor it, the better we
14 understand it, the better we're going to be able to do
15 these types of predictions.

16 And this presentation will be available at this
17 web site, thanks to the Georgia DNR, on Tuesday.

18 SENATOR WALDREP: Can I ask one question? If you
19 just keep on doing what we're doing and we don't do
20 anything at all to stop the pumping, is that indicated on
21 the models that you have?

22 MS. PAYNE: Yes, it's indicated both by model as
23 well as by the data. The model shows that if you leave the
24 pumping at the 2004 rates, the plume is going to continue
25 to expand. So the orange outline here shows what happens

1 if you just leave everything at 2004 rates, everything in
2 the model.

3 SENATOR WALDREP: And that's 100 years?

4 MS. PAYNE: And it's out 100 years from now. So
5 it's moved probably a few miles in certain areas.

6 Now, that is also shown by the monitoring data
7 and the data in South Carolina where the public-supply
8 wells -- through the last couple of years more and more of
9 the public-supply wells could experience the saltwater
10 contamination. So they know that, from observations, this
11 plume is moving at the current rate of pumping.

12 MR. BOARDMAN: Two questions. Looking at that
13 slide right there and you talk about the confining layer
14 being eroded in that area, if you look just at this area,
15 are those the only areas where the confining layer is
16 eroded? I mean, does it exist anywhere in Chatham County
17 or north of Hilton Head?

18 MS. PAYNE: Yeah, well, it's got a map and it
19 only shows -- there are large areas where the confining
20 unit is thin. Okay? This particular map just shows you
21 where it's 10 feet or less. But, yeah, these are generally
22 the areas where it's thinnest. As you move south and west,
23 the confining unit gets thicker.

1 MR. BOARDMAN: Okay. And then my other question
2 is you had a graph up there about the 1980's the chloride
3 level sharply increased. What happened --

4 MS. PAYNE: Oh, in 1980, yeah. Okay.

5 MR. BOARDMAN: What happened in those? I mean,
6 is that just development or what happened to such a
7 drastic --

8 MS. PAYNE: Yeah, what's happening is there is --
9 you're increasing pumping over the years. There is
10 saltwater that is starting to migrate through the confining
11 unit, maybe migrating laterally, from wherever the source
12 is, in the Upper Floridan aquifer. Okay. Once it hits a
13 certain area, it moves sort of like a -- the saltwaters
14 generally move like a big body of water. It's not going to
15 mix and dilute. At certain concentrations it will stay
16 pretty much.

17 So what it does, it's kind of moving through, and
18 as soon as it hits there the concentrations are just going
19 to increase. You get this big dense body of saltwater
20 that's accumulated.

21 MR. BOARDMAN: Okay.

22 MS. PAYNE: So it's basically -- once it breaks
23 through -- and, you know, there is -- you can see that
24 there is -- you know, from 1974 even until '80 you can see
25 that there is an increase. But once that really

1 concentrated stuff hits, it's just there. And that's what
2 it is; it's just high concentration.

3 MR. BOARDMAN: Okay.

4 MS. HAGOOD: Dorothy, I've got a question. You
5 talked if we continued pumping, the impact and the
6 continued growth of these plumes in the lateral movement.
7 What about downward movement?

8 MS. PAYNE: Well, the downward movement is going
9 to occur anyway. Downward movement is going to be
10 encouraged by a high vertical gradient. And I don't really
11 have any good pictures of it, but let me see if I can use
12 -- okay. So here is a picture where you can see saltwater
13 -- seawater moving -- you can see seawater moving through
14 the confining unit. Okay?

15 It's going to move through based on a couple of
16 different things. And whether it gets to the aquifer is
17 going to be based on a couple of things. It's going to be
18 based on how thick the confining unit is. It's going to be
19 based on the permeability of the confining unit. And it's
20 going to be based on the local vertical gradient. So even
21 where you have a thick confining unit, if you have a strong
22 pull because you're closer to a larger source of pumping,
23 you can be drawing saltwater through that confining unit.

24 So there are a lot of things going on here. And
25 there is a tradeoff between location, how thick the

1 confining unit is, where there is a saltwater source. I
2 mean, you can have a thin confining unit; if you don't have
3 a saltwater source, you're not going to have saltwater
4 coming into the system.

5 But, yeah, if you move -- and that's what this
6 data shows is that you've got confining unit but thicker in
7 the Tybee Island area than, say, on the northern end of
8 Hilton Head Island. Nonetheless, we're seeing that
9 saltwater is moving through the confining unit there.

10 MR. TANNER: Let me commend you for taking an
11 incredibly complex scenario and putting it in terms which
12 are easy for nonscientific people to understand. And
13 that's not easy to do. So, one, I commend you for that.

14 Two, what is frustrating for those of us who are
15 charged with carrying on a discussion to try to come up
16 with some solutions is, at least from my perspective of
17 your presentation, if you use the pain-and-pleasure
18 principle, you can inflict a lot of pain; it's going to
19 take a very long time to get any pleasure.

20 What's frustrating to me is most of the people in
21 this room, you know, I don't know what we can do now to
22 really make a difference even in our lifetime, based on
23 what you just said and presented. That's what's
24 frustrating to me. You know, I don't think the status quo
25 works.

1 But, on the other hand, we've got to try to
2 figure out what will we do now, you know. Do we go back to
3 our governors and say we can do this now and a hundred
4 years from now it's going to make a difference?

5 MS. PAYNE: I think part of that depends on where
6 you're looking at the problem. If you're just focusing on
7 the areas that have already been impacted, yeah, there's
8 saltwater there and the model would indicate that it's
9 really stubborn; it's not going to be easy to get rid of;
10 it's going to be there; it's going to take a lot of
11 reduction to stop.

12 But, at the same time, that saltwater is still
13 moving and, as it moves, there are other places which are
14 currently using freshwater. And we know it's moving
15 laterally and it can move vertically, as well. So, yeah,
16 the problem is there in some places, but it could also be
17 there in other places in the future.

18 MS. HAGOOD: Dorothy, I read that a little bit
19 differently. And help me understand, because I'm a lay
20 person on this. But following up on Joe's point there, if
21 you go back to that first slide you showed, which was
22 future if you do nothing --

23 MS. PAYNE: The simulation results?

24 MS. HAGOOD: Yes. Doesn't that show --

25 MS. PAYNE: This one?

1 MS. HAGOOD: -- yeah -- that there is a
2 possibility of having impact? I know it's a tradeoff, but
3 Joe is talking about at what point, you know. We're not
4 talking there right now, but there is an impact on that
5 growth of the plume.

6 MS. PAYNE: Right. If nothing is done, --

7 MS. HAGOOD: Right.

8 MS. PAYNE: -- the plume is going to continue to
9 grow.

10 MS. HAGOOD: Right.

11 MS. PAYNE: And the other thing I want to show
12 you is this picture -- which I really apologize; it must be
13 a different version of software. Well, you might be able
14 to make out some spot in here. These are blue spots; those
15 are wells that have not been impacted by the saltwater
16 intrusion yet. So that's the location -- the interpreted
17 location of plumes today, based on data. Okay?

18 And you can see the red wells are the ones that
19 have already had saltwater intrusion. The blue ones are
20 the ones that are beyond there. But we have seen from the
21 simulation the plumes are moving toward the pumping areas.
22 So blue wells, and there are a number more down here, those
23 are the ones that are at risk for future contamination. So
24 I think -- is that kind of where you're getting at?

1 MS. HAGOOD: Yes, that's exactly what I was
2 getting at.

3 MS. PAYNE: Right.

4 MS. HAGOOD: Thank you.

5 MR. MOSS: Dorothy, on the matter of the vertical
6 movement, from the point that we are sitting right here,
7 Hilton Head is about in that direction and there is
8 probably 10 miles of salt marsh that lays between us and
9 Hilton Head. We have no data at all in that salt marsh.
10 And that is the area from here on out where we have the
11 highest -- at least one of the areas with the highest
12 vertical gradients that's out there because it has the
13 saltwater moving in this way; that cone drops down and the
14 vertical gradients get greater.

15 One of my concerns would be that we don't know to
16 what extent the vertical movement has occurred out in that
17 salt area between here and there. I mean, we could have a
18 situation of aquifer contamination already occurring in
19 those marsh areas essentially between Daufuskie and Hilton
20 Head and these berms in the Savannah River.

21 MR. BELL: Dean, didn't some of the Corps of
22 Engineers studies cover that?

23 MR. MOSS: I don't think they were out there into
24 that marsh. I just don't know. And it seems to me one of

1 the things we have to talk about is working cooperatively
2 to get some more work done on that problem.

3 But there's a lot we don't know. But we do know
4 that, unless we do something, we are going to continue --
5 those blue dots up there are going to get -- and that's
6 2004 data. It's almost 2007. So in that period between
7 2004 and now we have probably moved that 250 mg/l line
8 another three or four hundred feet down gradient based on
9 the movement.

10 So it just seems to me that we need to focus our
11 research fairly tightly on understanding particularly the
12 risks to Savannah's water supply. I think we already know
13 the risks -- what's happened to Hilton Head's water supply.
14 Savannah's water supply, to me, is -- if we're making the
15 assumption that it's hundreds of years before Savannah's
16 water supply will be affected, I don't think that's an
17 assumption we can make with the data we have right now.

18 MR. SPITZ: Dorothy, whatever conclusions we
19 draw, I just want to echo Joe Tanner's comment. I am not
20 only not a rocket scientist, frankly, I'm not a scientist.
21 Frankly, I'm a lay person. Frankly, I'm a slow-learning
22 lay person. Given all that, this was a wonderful
23 presentation to explain some of the things, and I thank
24 you, just personally speaking.

25 (Applause)

1 MR. BOARDMAN: What's the time line of this? I
2 mean, how much more research? Are y'all at a stopping
3 point? Is this phase one, phase two? What happens next?

4 MS. PAYNE: Well, this concludes, I would say,
5 probably the first phase of the Sound Science Initiative,
6 one following. And there is more work that can be done
7 here, and we're going to be continuing work. And one of
8 the areas that we're talking about is focusing on the
9 vertical movement, particularly in the Tybee Island area,
10 kind of taking what the Corps of Engineers did and sort of
11 zooming in in this model, that particular area, and looking
12 at that particular risk.

13 SENATOR WALDREP: Just one question. I'm trying
14 to get kind of a lay look at this thing just from the logic
15 standpoint and all the data and information that you have
16 supplied to us. Is pumping the only factor that we're
17 really talking about? We're talking about a lot of
18 effects, but pumping is the only factor, positive or
19 negative; is that correct?

20 MS. PAYNE: Well, I'm not sure exactly what you
21 mean. The only factor that causes saltwater intrusion --

22 SENATOR WALDREP: Yeah.

23 MS. PAYNE: -- in this particular instance or --

24 SENATOR WALDREP: What causes, right. In other
25 words, if man had not gone into this area a hundred years

1 ago and started pumping, you know, where would we be? I
2 mean, would it be -- are there other factors that have come
3 in, --

4 MS. PAYNE: Yes, there are other factors.

5 SENATOR WALDREP: -- natural tides, --

6 MS. PAYNE: Yes.

7 SENATOR WALDREP: -- or something of that nature
8 that would have disrupted the natural purity of these
9 waters?

10 MS. PAYNE: Well, pumping adds a stress that is
11 not there otherwise. If you don't have any pumping you can
12 still have saltwater entering the aquifer, and that's
13 because of density differences and because in this
14 particular area, the hydrogeology, the area is more prone
15 to having saltwater enter. But if you don't have any wells
16 in there, then you're not drawing in the saltwater and
17 causing any contamination.

18 So the saltwater that enters is not going to be a
19 problem until you put a well in and want the clean water.
20 Once you put a well in you're changing a whole system;
21 you're changing the dynamics; you're changing the flow
22 directions; you're changing the downward draw of saltwater
23 into the aquifer. So pumping is a big factor.

24 But there are other factors, as well, and that is
25 that the area is just hydrogeologically prone to saltwater

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1 intrusion for many reasons. And it may just be an area
2 that can't withstand as much stress as, say, the Upper
3 Floridan aquifer in another county in Georgia, you know,
4 somewhere further inland.

5 SENATOR WALDREP: But I guess it's extremely
6 difficult to get an accurate picture of all this
7 underground. I don't know how you would do that, you know,
8 to know where all these areas are. And so when you put all
9 this data together, a great deal of it is a little
10 speculative; is it not?

11 MS. PAYNE: There is a fair amount of assumption
12 that goes into these models. You use the data that you
13 have, and that data is located in very specific places.
14 But you do have to make inferences between data points. If
15 I've got a data point here and a data point here -- for
16 example, that marsh area between Savannah River and
17 Calibogue Sound, there are no data in there, very few data.
18 So we don't know what's going on there.

19 We have to use our best knowledge, and we're
20 making an educated guess. We know a lot about the system.
21 We know a lot about how these systems operate in general.
22 So our guess is pretty well informed, but it's the best
23 that we can do with available data and available knowledge.

24 DR. COUCH: So to pose a real practical question
25 here, even though the slide is cut off, I think we see

1 enough of the location of the wells to see, well, what
2 wells, given where they are at, are most at risk for
3 becoming, you know, unacceptable in terms of salt.

4 And I think one clear takehome is that this is a
5 model, it's a tool, it has uncertainty. That means in
6 terms of how we interpret it and how we use it to develop
7 an objective that you're going to manage toward, we know we
8 need to err with some degree of what I would say is
9 conservatism in what we do because it is a resource that
10 you can't make -- you know, you have low tolerance to make
11 the wrong decisions on, one.

12 But, Dorothy, this is a question that gets more
13 to a judgment. I'm trying to synthesize of all these
14 scenarios because they do bracket kind of the edges of the
15 boundaries that we need to be thinking in. But if we were
16 to articulate a management objective and try to work toward
17 it and say that we don't want any of the blue wells -- the
18 wells that are currently in blue to go red, what do we need
19 to do?

20 MS. PAYNE: Well, if you -- knowing the
21 uncertainty in these model results, --

22 DR. COUCH: And that's why I, yeah, phrased my
23 question --

24 MS. PAYNE: -- and if you're willing to accept
25 that as your risk and, okay, we're going to make this

1 management decision, full knowing that, you know, there is
2 a certain amount of uncertainty in these model results, you
3 would have to turn off -- you would have to cut back
4 pumping severely. You know, you would have to cut it back
5 by over 50 percent. That's what these scenarios that I
6 showed today say.

7 And, in fact, we actually took the scenarios
8 further and went to 75 percent and eighty-seven and a half
9 percent. We basically bisected and we got to eighty-seven
10 and a half percent. And then, you know, we got the edge of
11 the plume pretty close to where it is in --

12 MS. HAGOOD: Do you have any slides of that or is
13 that just a verbal? Any slides showing kind of those
14 scenarios over 50 percent and the impact of that plume
15 growth?

16 MS. PAYNE: I don't think I included those
17 because for exactly the reason we're talking about when
18 you're looking at model results. You know, you don't want
19 to --

20 MR. MARTIN: Show the 100-percent reduction. If
21 you go back --

22 MS. PAYNE: Hundred percent reduction? I mean, I
23 can show you 100-percent reduction, but I don't have the
24 ones that show all the increments in between. I would be
25 standing up here all day showing slides, first of all.

1 Second of all, you know, I know that this is a model and I
2 can't tell you, okay, you have to cut pumping by, you know,
3 91.725 percent. That model -- we don't have the certainty
4 in that model to tell us that.

5 Okay. So if we cut -- one thing I did want to
6 show though, and the reason why I left it at 50 percent, is
7 that even with 50 percent reduction, -- and, again, that
8 would mean 37.7 million gallons per day in the Chatham area
9 and in the southern Beaufort County area which I was
10 showing; that's -- what did I say -- 8.2 -- it's a lot,
11 significant -- it's a substantial reduction in pumpage, and
12 that's 50 percent and you're still getting a plume outside
13 of where it is simulated under current conditions.

14 MS. HAGOOD: All right. I'm a lay person. So,
15 again, I'm -- you know, I'm worse than Steve Spitz. So you
16 got to go real slow here. So I'm thinking about over 50
17 percent. My mind -- and this isn't scientific, but from a,
18 you know, kind of economics and business point of view,
19 goes to at what point do you get to zero or neutral enough.
20 You know, we saw what 100-percent stoppage would do. And
21 then you're saying 87.5 might be approximating that point.
22 Is that -- am I hearing that right or would you like to
23 correct me?

24 MS. PAYNE: Yeah, I'm not going to tell you a
25 number that's going to --

1 MS. HAGOOD: You can be general. I'm just trying
2 to gauge that out in my mind. I want to be accurate.

3 MS. PAYNE: Yeah. As general as I can be for
4 this figure, for example, is more than 50 percent.

5 MS. HAGOOD: Right.

6 MS. PAYNE: Okay. This figure, we have turned
7 off all pumping in the Savannah area, and the blue line is
8 50 percent in the southern Beaufort County area. Okay? So
9 you can see the plume still is outside of the simulated
10 2004 extent in some areas.

11 DR. COUCH: But are wells in the -- are wells --

12 MS. HAGOOD: Located --

13 DR. COUCH: -- still going to be --

14 MS. PAYNE: Yes, there are wells all over the
15 northern end of Hilton Head Island.

16 DR. COUCH: That with 100-percent reduction will
17 still go -- under your simulation, with the uncertainty,
18 are projected, because of the extent of the plume, with
19 100-percent reduction, there will be additional wells that
20 will salt up?

21 MR. TANNER: The other thing here to remember, --

22 MS. PAYNE: No.

23 MS. HAGOOD: No.

24 DR. COUCH: No?

25 MS. HAGOOD: No.

1 DR. COUCH: Okay.

2 MR. TANNER: -- you're taking this out 100 years,
3 right?

4 MS. PAYNE: Yes, this is out 100 years.

5 Okay. Now, if we turn off pumping in both of
6 those areas, okay, that's 100-percent reduction in both
7 areas, --

8 DR. COUCH: Yeah.

9 MS. PAYNE: -- and one of the things that you can
10 see is that in some areas the plume has shifted inside of
11 the 2004 extent. In other areas it's starting to shift
12 outside of that. That's because of the natural gradient.
13 So the plume is just kind of starting to float offshore.

14 DR. COUCH: So let me say it in a different way
15 to see if I'm understanding this completely. Hundred-
16 percent reduction in both areas simulated for 100 years
17 from now results in essentially some movement around the --
18 you know, the shape and relative location, a stabilization
19 of the extent of the saltwater; is that --

20 MS. PAYNE: Pretty close to 100 percent in that
21 it's going to slowly move, shift offshore.

22 DR. COUCH: So 100-percent reduction basically,
23 with all the uncertainty, 100 years from now, perhaps at
24 least stabilizes the current extent but not necessarily the
25 shape, because it's going to continue to move in some --

1 MS. PAYNE: Yeah.

2 DR. COUCH: It's unpredictable?

3 MS. PAYNE: Right, because flows are still
4 occurring; so the plume is always going to be moving. No
5 matter what you do, it's going to be moving in some
6 direction.

7 MR. TANNER: But in simple layman's terms for me,
8 cut off all pumping and in 100 years you're going to have
9 pretty much what you've got today?

10 MS. PAYNE: That's what these simulation results
11 would indicate.

12 MR. MOSS: Dorothy, that assumes that all that
13 pumping kind of stops instantaneously?

14 MS. PAYNE: Right.

15 MR. MOSS: And from a practical standpoint we
16 know that in order to stop that pumping there are very
17 substantial dollars that have to be spent over a
18 significant period of time. I mean, if you look at what
19 happened in Beaufort County from the point that the -- and
20 you have a slide on that that shows the Beaufort County
21 history -- when the State declared a limit on the pumping,
22 it took nine years, with everybody in agreement to do it,
23 to get that fully implemented. I mean, it went -- and I
24 was part of that process.

1 So that slide right there. '93, essentially, the
2 agreement was reached to cap withdrawals, and it took nine
3 years to get to that point just in terms of the
4 construction of the facilities that had to be built to
5 develop the alternative water supplies. So my assumption
6 would be -- and now in the Beaufort County side those
7 facilities were in place. So, in effect, we could almost
8 do an instantaneous stopping in South Carolina because
9 we've got the water supply facilities in place to do it.

10 But in the Savannah area there is a huge
11 investment that has to be made in order to accomplish that,
12 and I'm suggesting 10 to 15 years to get that done just to
13 deal with the existing folks. And so you really have to
14 look and say that pumping would decrease over time and you
15 would still get movement of that saltwater wedge during
16 that period of time before you really got to that point of
17 zero.

18 MS. PAYNE: You know, we were kind of looking at
19 the end members and extremes. We didn't really have time
20 to wait for -- to run a simulation and kind of analyze the
21 results and come back and say, okay, well, now let's reduce
22 it another four and a half percent in this area. You know,
23 it's sort of a more wholesale, large-scale approach to it.

24 MR. McSHANE: Gus, if I may. I'd like to just
25 tag onto that particular slide, going to your point, Joe,

1 early on why -- we do have a responsibility to help guide
2 our good governance in terms in terms of management plans;
3 because, if you look at that, it took almost 20 years to go
4 from a -- just a declaration of the problem to have some
5 conservation measure. And I would suggest that the
6 population did not stay static. It probably -- in the 10
7 years of that cap to today, it's probably doubled, at
8 least, in that area.

9 So I think that underlies and underscores really
10 why we need to start doing something on that, because I do
11 think we are going to look at -- you know, if Savannah made
12 that decision today to a response, it probably would be 10
13 or 15 years to do it. I'm not suggesting that; I'm just --

14 DR. COUCH: Well, you know -- Gus, you had a
15 question?

16 MR. BELL: The question I'm going to ask is going
17 to probably be cost-dependent. Could a model be done to
18 where you could -- our technology pumping back into the
19 impacted area and see what --

20 MS. PAYNE: Oh yeah, you can do that. That's --
21 yeah, that's pretty easy to do in a model. But, now
22 remember -- when you take any model and if you're trying to
23 get very specific answers like if we do this is this our
24 magic solution, you've got to remember that all the
25 limitations in the model -- the results that you get,

1 you've kind of got to understand those in terms of all
2 those limitations and how to rely on those. But, yeah, you
3 can do ASR really easily with models, just putting water in
4 -- freshwater in or whatever instead of taking it out.

5 MR. BELL: You can try to do some minor fixing --

6 MS. PAYNE: Yeah, you can take these models --
7 and that's a good thing about models is you can play all
8 these kinds of games with them and think about, you know,
9 ways to remediate the situation and try them on a model.

10 MS. HAGOOD: Can I ask one more question just to
11 make sure -- and this gets back to kind of a follow-up to
12 my first one, because I'm confused. We talked a lot about
13 this lateral movement, and I asked about that downward, as
14 well. I want to make sure I understand about the impact
15 the downward, you know, could have on -- you know, we're
16 talking about future wells being impacted around. Is that
17 a possibility? We're talking about lateral movement of
18 that plume, but downward --

19 MS. PAYNE: It depends on where the wells are.

20 MS. HAGOOD: Yeah.

21 MS. PAYNE: Yeah. I mean, saltwater -- like I
22 said, there's a tradeoff.

23 MS. HAGOOD: Yeah.

24 MS. PAYNE: If you have a strong downward
25 gradient, that's going to pull saltwater down.

1 MS. HAGOOD: Right.

2 MS. PAYNE: If you don't have a saltwater source
3 right over that strong gradient, the nearest it's going to
4 pull it down is where you've got the saltwater source. So,
5 for example, right over the city of Savannah you don't have
6 a saltwater source.

7 MS. HAGOOD: Right.

8 MS. PAYNE: If you go out -- and that's what the
9 slide shows -- on Tybee Island, you do have saltwater right
10 there. Right near the Savannah River you've got a
11 saltwater source.

12 MS. HAGOOD: Right.

13 MS. PAYNE: And I think the Corps of Engineers
14 showed that -- their report showed that there are several
15 wells on Tybee Island where they're starting to see the
16 saltwater moving through the confining unit. That's what
17 that one slide shows.

18 MS. HAGOOD: David, are you aware of that?

19 MR. BAIZE: Yeah, I was just going to say --
20 Dorothy, what would be -- so the other potential benefit of
21 reducing pumping would not only be on the northern end of
22 Hilton Head but help mitigate this threat that has been
23 identified but not fully quantified yet; is that --

24 MS. PAYNE: Well, if you reduce -- are you
25 talking about reducing pumping everywhere? What you will

1 do is you will decrease that vertical gradient and decrease
2 the pull through the confining unit.

3 MR. BAIZE: So I guess, yeah, I was just saying
4 it's a benefit across the entire area, not just on the
5 northern end of Hilton Head.

6 MS. PAYNE: To reduce the --

7 MR. BAIZE: To reduce pumping.

8 MS. PAYNE: -- movement of saltwater through the
9 confining unit.

10 MR. TANNER: Let me ask you one other additional
11 question, and this is truly showing my ignorance. You
12 know, try to be nice to me. If you go down to Brunswick,
13 the saltwater intrusion problems there are stronger. Okay?
14 Do we have any of that kind of problem up here, or can you
15 not explain that?

16 MS. PAYNE: Not to the same degree. Okay. What
17 happens in Brunswick is that at depth below the Upper
18 Floridan aquifer, so deep in the Floridan aquifer system,
19 there is saltwater that has accumulated there either
20 because it was deposited back when the sediments were
21 deposited and it just remained in the water there; in
22 addition, you can have water moving through there, and any
23 dissolved salts will accumulate. And, in fact, that's
24 probably a lot of what's happening there is because the

1 chemical profile does not look like seawater. In some
2 places it's more highly concentrated.

3 So what's happening is that somewhere down
4 through geologic time we just have this concentration of
5 salt increasing in the groundwater deep in the aquifer.
6 And in Brunswick, you know, the look at the aquifer
7 properties. There are huge caverns. There are places
8 where there may be faulting and fracturing, and you have
9 these vertical conduits that connect the fresher Upper
10 Floridan at depth with very salty lowest part of the
11 Floridan aquifer system. And so what happens in the case
12 of Brunswick is when they pump in the upper part and they
13 reduce the gradient there, that draws water upward from
14 below. So that's bringing saltwater up.

15 It's a different problem entirely, we think, to
16 what's going on here. Here it looks pretty much, from all
17 the data, all the age data and the chemistry data, that the
18 saltwater source is seawater or, you know, brackish marine
19 water.

20 DR. COUCH: I might suggest maybe we could have a
21 break at this point in time. And I think there are some
22 additional questions for Dorothy.

23 If you could be available after the break, I
24 think it's a good time to have some discussion.

1 So let's take a break. But let me just
2 reiterate, Dorothy, thank you so much for this very
3 informative, well put together, and very helpful
4 presentation.

5 (Applause)

6 DR. COUCH: Shall we say 10 minutes?

7 (Recess from 10:26 a.m. to 10:45 a.m.)

8 DR. COUCH: Okay. I'm going to try to speak up.
9 We don't have mikes that might carry everybody's voices.
10 So I guess I would ask that as we are talking, amongst
11 ourselves in particular, if you can't hear one of us, just
12 somebody say something, because I think this presentation
13 should be able to, I think, have a very good discussion
14 here among our Committee.

15 There might have been a couple of other questions
16 for Dorothy, but I think she needed to step out for a
17 moment. The one figure that doesn't show all the blue
18 wells, we're going to try to have that printed out so it
19 will -- and all the presentations that are done today will
20 be available up on web site. So we will get that
21 information out.

22 I think it might be maybe a good way to -- let's
23 take a stock of our agenda for a moment. We are scheduled
24 for lunch at 11:30, and I suspect that we probably have
25 enough conversation on our first agenda topic to take us

1 through 11:30. So we probably will be modifying our
2 agenda, with your agreement, to complete our conversation
3 on the first topic and then move to lunch and then come
4 back on the water quality topic. Does that seem to make
5 sense to all of you?

6 SENATOR WALDREP: Yeah.

7 MS. HAGOOD: That's fine.

8 DR. COUCH: So, therefore, Linda, you will keep
9 us awake after lunch, right?

10 MS. MacGREGOR: I'll try.

11 DR. COUCH: Okay. Excellent.

12 I guess what I would propose maybe is having an
13 opportunity for those that have some either additional
14 questions that need to be addressed or some observations,
15 just to maybe go around and offer our individual
16 observations on what we heard today and start framing up,
17 well, where -- therefore, where do we go from here. I
18 think that's one of the objectives that we need to get to
19 today.

20 MS. HAGOOD: I have a basic question before we do
21 observations.

22 DR. COUCH: Sure.

23 MS. HAGOOD: And, you know, I know that Dorothy
24 is not back. And it may be, honestly, so basic that people
25 in the room, ya'll here, can answer it as opposed to even

1 Dorothy. And what it really -- if you want me to go ahead
2 and start.

3 DR. COUCH: Please, go ahead.

4 MS. HAGOOD: Is that okay?

5 DR. COUCH: Absolutely.

6 MS. HAGOOD: I just need a clear understanding of
7 the distinction between the impact pumping has on plume
8 growth versus water level impact and kind of the interface
9 of those two, because I'm not real clear on that and that
10 may have a real -- does anybody else --

11 DR. COUCH: John, would you care to --

12 MR. CLARKE: She mentioned the density effect.

13 MS. HAGOOD: Yeah.

14 MR. CLARKE: So seawater density is about 1.025
15 times freshwater density.

16 MR. TANNER: John, step up to the right a little
17 bit because of the glare.

18 MR. CLARKE: Okay. Freshwater density -- I mean
19 saltwater density is about 1.025 times saltwater. So the
20 pressure of that is going to be greater on the freshwater
21 head. So you need to kind of overcome that amount of
22 pressure. So if you have a freshwater head that's
23 offsetting that, you have to get to a certain point where
24 you drop below that point where the gradient changes. And
25 so it's sort of a sensitive system.

1 Under the predevelopment period where the
2 freshwater pressures exceeded the saltwater pressures, the
3 situation is okay. But then when the freshwater pressures
4 were reduced, the saltwater density effect overtook that,
5 and so then you started having salt introduced into the
6 aquifer.

7 So like when you had Parris Island quickly have
8 their wells go under, it's such a sensitive situation where
9 you have this very close gradient between the freshwater
10 head and the saltwater head, that when you lowered the
11 pressure just a little bit in the aquifer it quickly
12 flipped, the gradient changed, and those wells at Parris
13 Island were quickly contaminated in 1903 where they just
14 pumped for a short period of time and they became salty
15 very quickly.

16 So that, apparently from that one graph that she
17 showed with the -- when the salt started coming around
18 1980, when the salt situation started degrading, that's
19 when you can infer that the pressure was reduced
20 sufficiently to introduce the salt to come into the system.

21 MS. HAGOOD: And let me ask this even more
22 simply. So if you stopped pumping, -- and I think she had
23 a scenario 100 percent in both places -- then it may take
24 still a longer time to influence the plume growth, but you

1 would have a much quicker impact on water level; is that
2 not true?

3 MR. CLARKE: Absolutely, and that's what the
4 monitoring data showed.

5 MS. HAGOOD: Right.

6 MR. CLARKE: You know, since 1997 we have had a
7 very rapid recovery in the water levels; and yet, the plume
8 has not responded as quickly. And there's sort of --
9 there's a lag time between when these things happen because
10 there's a -- you know, there's a condition called steady
11 state, when things are all in equilibrium. We are not in
12 steady state, where things are very unstable, where things
13 are changing. And so there is some momentum to the plume
14 movement that, you know, we have not reached the point
15 where that's equilibrated yet.

16 MS. HAGOOD: So even if you stop the pumping and
17 it has a more immediate impact on water level, would you
18 say that increases momentum towards that steady state?

19 MR. CLARKE: Yes.

20 MS. HAGOOD: Okay. So that's a positive
21 impact --

22 MR. CLARKE: Yes.

23 MS. HAGOOD: -- direct, even if it's not on the
24 plume at that point for a short-term versus a long-term
25 gain?

1 MR. CLARKE: Right, right.

2 MS. HAGOOD: Okay.

3 MR. CLARKE: So at very fast water levels the
4 saltwater is going to get much much slower.

5 MS. HAGOOD: Thank you. That helps me a lot. I
6 appreciate that.

7 DR. COUCH: It's something you can't touch and
8 feel.

9 MS. HAGOOD: Right.

10 DR. COUCH: I understand very much.

11 MS. HAGOOD: I appreciate the indulgence.

12 DR. COUCH: Okay. Well, does anybody want to
13 start with some observations or questions or conclusions or
14 points that you think we need to -- I have some that I have
15 formed, but I would be happy for others to begin.

16 SENATOR WALDREP: I have a simplistic
17 observation. After all that has been said and presented by
18 equations and research and chemical formulas and
19 everything, isn't there only one thing that we are looking
20 at and that is the reduction of pumping? I mean, is that
21 too simple? In order to achieve what I think both states
22 would like to do. And then the next question is to what
23 degree. And then the next question is when are we going to
24 do it, you know.

1 I just -- again, just see this as two states, two
2 entities, mutually sharing a problem. We are
3 interconnected. It's almost like, again, you know, you get
4 to that thing of like two children that are biologically,
5 you know, connected in some way and we can't be severed, so
6 to speak. It doesn't seem like -- that no operation in
7 science could take us and separate us so that we would be
8 two independent entities. We are kind of together.

9 And now it gets back to the next observation I
10 have. Does that lead us to the next conclusion that it's
11 mutual suffering that we are going to endure, not mutual
12 pleasure but mutual suffering? I love the pleasure, but it
13 just seems --

14 MS. HAGOOD: Where is the pleasure?

15 SENATOR WALDREP: So that's just a general
16 philosophical look, you know, at where we are.

17 DR. COUCH: Okay. Well, that's, I think, a very
18 interesting way you have framed that, and I think those are
19 the logical pieces that I think that we need to begin
20 talking about.

21 SENATOR WALDREP: Okay. And then the next step
22 is what steps do we take and who is going to make the moves
23 and, you know, what is South Carolina willing to do. And I
24 hope I haven't overstated my boundaries, because there are
25 people here that have so much more in-depth understanding

1 of this than I do. So at that point I think I shall shut
2 up and just allow others to speak to this issue.

3 DR. COUCH: Okay.

4 MR. MOSS: Well, let me offer at least an
5 observation, and that is that if you take what John said
6 and that we can reduce pumping levels -- we can reduce
7 pumping and the water level rise occurs and we move towards
8 stability, it's still going to take some time for the
9 system to stabilize and the plume to stop moving. So there
10 is a lag time -- significant lag time there. How
11 significant, I don't know. That's a key question probably.

12 Additionally, if we resolve to stop pumping,
13 there is a very significant lag time between the point that
14 we make that resolution and our ability to accomplish it
15 because we've got to make -- we've got to build stuff, got
16 to finance stuff, got to overcome a certain significant
17 amount of political kind of push back on us. I mean,
18 there's lots of things that have to be done before we get
19 to that point.

20 So those two factors tell me that the sooner we
21 can resolve to do something, the better off we are. Even
22 if we know the data, we'd like to have more information,
23 we'd like to have particularly more data on this vertical
24 movement phenomena. But if we wait and we wait for more
25 data, all we're doing is essentially prolonging the point

1 at which we have to confront the pain. So I think that
2 generally the quicker we can move ahead and try to figure
3 out the next step, the better off we are.

4 DR. COUCH: You know, one of the things that, I
5 guess, I would like to maybe frame for a moment is when
6 Georgia put the moratorium in place for the additional use
7 of the Floridan aquifer in 1997, I wasn't involved in
8 participating with the State in that regard. So I didn't
9 live through that experience.

10 Joe, you've been around the block on that.

11 And one of the things that Georgia did in 1997
12 was probably, given the state of our knowledge at that
13 time, I guess I'd characterize it as probably one of the
14 most Draconian, dramatic things that you could do in the
15 face of what we knew then, and that is to say no more
16 pumping in the Floridan aquifer with a small amount of
17 areas that were reserved in 24 coastal counties.

18 Okay. So that was -- from a resource point of
19 view, from many of the counties in the area, and certainly
20 from a political leadership point of view, that was pretty
21 substantial. We aren't talking about 12 miles or 8 miles
22 of Hilton Head Island, a capacity-use area that is -- we're
23 talking about essentially half the coastal plain of the
24 state of Georgia under a complete moratorium, with some
25 exception.

1 MS. HAGOOD: In what year? Say that again.

2 DR. COUCH: 1997.

3 MS. HAGOOD: '97.

4 DR. COUCH: So those of you that have followed
5 this most closely know that since that time at the
6 beginning of that moratorium the state of South Carolina
7 and Georgia, through our resource leaders at that time,
8 which were, I believe, largely Lewis Shaw and Harold
9 Reheis, worked together to put a plan in place that really
10 birthed the Sound Science study that we're seeing the
11 results of today.

12 So it's taken a lot of effort, a lot of time, a
13 lot of money, a lot of commitment on both sides of the
14 state to be in a situation where, as we are meeting today,
15 we can be as well-informed, even with all of the gaps in
16 knowledge as we are today and the fine way that Dorothy has
17 done. And I guess I bring that up because for us, with the
18 charge that we have from our governors, we come back a
19 couple of points in the time it takes to get things done.

20 From 1997 through 2004 in the Chatham/Effingham
21 area we actually accomplished a reduction from 71 mgd
22 pumpage to 4. So we have already been on a trajectory of
23 reductions in the area, largely, I might say, due to the
24 leadership of the City of Savannah and the work that they
25 have been doing.

1 And so I want to stop a minute and give some
2 kudos here because, even in our own state, I'm afraid the
3 City gets often pointed out as the problem. But I can tell
4 you that they have been there with the solutions, as well.
5 So I just want to stop and make some kudos, since we are
6 sitting here in the fine city of Savannah. And I know that
7 they are prepared to continue to be part of the solution as
8 we move forward.

9 The Coastal Permitting Plan that we produced
10 earlier in the year and we are beginning to implement now
11 has a couple of principles in it I just wanted to reiterate
12 because it does bear on where do we go next. One of the
13 things that I said early in one of our meetings and, I
14 guess, at a time when we were still trying to inform each
15 other and ourselves, is that we view the Coastal Plan as a
16 beginning of a process and we don't quite see where the end
17 is because of the evolving nature of the science. But
18 there were a few elements that we did understand that are
19 important that are the basis of that plan.

20 First of all, that plan does, in fact, call for
21 and we are taking five additional mgd reductions in the
22 pumping in Savannah and Effingham County by 2008. So, in
23 addition to the trajectory we have already executed over
24 this period of time, largely through the leadership of the
25 City of Savannah, we have got another -- we are actively

1 now working to reduce 5 mgd over the next two-year period
2 of time or essentially less than that at this point in
3 time.

4 The concerns that have been discussed today and
5 we have been informed about on Hilton Head were largely the
6 genesis of why we started doing this study together more
7 than seven years ago. However, what has also emerged is
8 the understanding of the larger potential of the saltwater
9 breakthrough, you know, where these are confining units are
10 thinner offshore.

11 And from a resource point of view to Georgia, one
12 of the principles that we have and Governor Perdue clearly
13 understands is that we need to be extremely conservative
14 with any use moving forward of the Floridan aquifer in the
15 area of Savannah/Effingham Counties. We need to reduce.
16 We are committed to reducing. In the next two-year period,
17 with our analysis of what we can accomplish, we believe
18 that a 5-mgd target is achievable. But we also aren't
19 waiting to begin the process of understanding that there is
20 going to need to be further reductions.

21 What we to date have not been, I think, clearly
22 dialed in on is if we are going to establish a larger
23 amount of reduction at some date in the future, Senator
24 Waldrep, to your point, what should it be, why should we do
25 it, and what is the cost benefit and relative to either

1 contributing to the stabilization or saltwater issues on
2 Hilton Head Island. Even if we weren't joined at the hip
3 in the way we are, we still have the larger issue of the
4 offshore, which is highly uncertain and for us is one of
5 those things that says no more, reduce and begin the
6 process of continuing to understand and monitor.

7 So that's the basis of that Coastal Plan. It
8 anticipates the knowledge and opportunity of what we can do
9 in the near-term; and it also, if you read it carefully,
10 anticipates that we are going to need to revise and be
11 adaptive in future reductions depending on a variety of
12 factors, one of which -- and I might highlight this because
13 I would like for us at some point today to maybe put this
14 in your mind and cycle back to it.

15 One of the principal ways that in the --
16 particularly in this area, that we have been able to
17 continue to serve the needs for water supply is the use of
18 the Savannah River through the investments that the City of
19 Savannah made with the plant here. And that plant has
20 additional capacity to increase, I think, roughly by
21 doubling. I might be wrong. We have representatives here
22 from the City that might inform us on that later.

23 But here is the thing; the Savannah River is one
24 option that we are looking to and we are planning to use at

1 a higher degree than we are currently using now for the
2 area, but it is also not limitless.

3 And, also, the work that we will be talking about
4 this afternoon on the TMDLs and water quality issues and
5 having a larger framework for understanding the complete
6 demands on the system, while we do believe that there is
7 additional capacity to use the Savannah River for purposes
8 of Georgia's needs, it is not unbounded, and the bounding
9 has not been something that we, between the two states,
10 have established. So that's a loose end for us to, you
11 know, craft; what are the alternatives we bring? So that
12 needs to be focused on.

13 But the area that Governor Perdue has articulated
14 very clearly to me and to others is that for the near-term,
15 as we are shifting and using the opportunities to reduce
16 the 5 mgd, his focus is to put together a comprehensive
17 plan for reuse of water and water conservation for this
18 area, of which there are elements in place already and
19 where we have active conversations going on.

20 So, in addition to the 5 mgd we are working on,
21 we are working this year with local communities on reuse
22 and conservation and assessing the degree to which reuse
23 needs to be -- what size of the ultimate pie do we need
24 that can come from that, because there are bounds on that,
25 as well. So we are actively looking at this as a multi-

1 layered problem, a multi-layered resource, and the need to
2 diversify, conserve, and reuse.

3 So I guess that would largely frame, you know,
4 our approach to this problem and one that I hope you see
5 has plenty of space for us to continue to work on it
6 together.

7 MS. HAGOOD: Can I ask a question on that and
8 kind of just maybe take it to the next step, and that is I
9 appreciate you kind of giving somebody like me, who is
10 relatively new to this, a history about, from Georgia's
11 point of view, the moratorium and kind of that is the
12 interim step while the Sound Science Initiative was coming
13 on to kind of articulate what the reduction should be or
14 give us a model to use to get to that point.

15 And maybe somebody, because it's not me, could
16 give me kind of what -- that's Georgia's view -- the South
17 Carolina, what we kind of have been thinking historically
18 and whether that's, you know, DHEC or -- I don't know who
19 to do that. I know I don't have that kind of -- and what
20 all has happened in that area in terms of our history of
21 getting to this point.

22 Dean, would you be the person to do that or --

23 MR. MOSS: I can do it.

24 MS. HAGOOD: Okay.

1 MR. MOSS: And I came into this equation just
2 about at the point that the South Carolina Water Resources
3 Commission, which was the predecessor to -- one of the
4 predecessors to the DNR, started the process of
5 establishing a limit on the amount of water that could be
6 pumped out of the aquifer in southern Beaufort County and
7 particularly on Hilton Head Island.

8 MR. McSHANE: Do you want to go to the slide that
9 she had that showed the time frame?

10 Dorothy, do you remember the slide that had the
11 time frame of -- it was a DHEC slide that pointed out, I
12 think, 1981, 1993.

13 MS. PAYNE: You're talking about the --

14 MR. MOSS: Yeah, and you can leave the --

15 MS. PAYNE: -- not the history; you want --

16 MR. McSHANE: That one.

17 MR. MOSS: That will work.

18 That capacity-use area process, if I'm correct,
19 Counselor, was derived to a great extent from the work of
20 the first Governor's Water Law Committee --

21 MR. SPITZ: Yes.

22 MR. MOSS: -- that you chaired in '81. And
23 Beaufort County was one of the initial capacity-use areas,
24 I believe. Also, Horry County in the Myrtle Beach area was
25 included in that at that time.

1 Beaufort-Jasper was and now is the principal
2 water supplier in the area affected by that capacity-use
3 area, and we provide water -- surface water generally to
4 all our customers. groundwater in our service area
5 comprises less than probably, on an annual basis, two
6 percent of the total water supply in southern Beaufort
7 County.

8 MR. BOARDMAN: Will you say that one more time?

9 MR. MOSS: Off of Hilton Head -- and Hilton Head
10 is different, but off of Hilton Head, in southern Beaufort
11 and Jasper Counties right now groundwater probably accounts
12 for less than two percent of the total water supply because
13 we have extended surface water lines, we have taken wells
14 off line, we have acquired small utilities which were
15 relying on wells and converted them to surface water.

16 Hilton Head contracts with us for surface water,
17 and we provide this summer probably an average of 5 million
18 gallons a day of surface water onto the island which serve
19 the two northern utilities. There are three water
20 utilities on Hilton Head Island, within the town of Hilton
21 Head Island, hard as that might be to believe.

22 The Sea Pines South Island utility relies upon
23 the Cretaceous aquifer, which is down approximately 3800
24 feet, brings water up 120 degrees coming out of the top of
25 the well head, very nasty water, does a heat-exchange

1 process, reduces the temperature, and then moves that water
2 through reverse osmosis.

3 DR. COUCH: Sounds like hellish water.

4 MR. MOSS: That's the decision they made. But
5 then they blend that water back in in a number of steps to
6 essentially produce a water that meets the drinking-water
7 standards across their service area. But they rely
8 substantially on Floridan water for their supply, as well.

9 If I'm right, Alton, the way the permits are
10 written for the island wells, there is no limit on a
11 monthly basis; there is only a limit on an annual basis for
12 pumping.

13 MR. BOOZER: (Nods head affirmatively)

14 MR. MOSS: So that, they have an annual pumping
15 limit that they can use any way they want. They can pump
16 all that water in the summertime and they can pump it all
17 in the winter and use something else in the summer. They
18 have complete flexibility to do it.

19 The 9.7-million-gallon-a-day limit was an island-
20 wide total which at the time it was established was divvied
21 up then between the island utilities essentially through
22 negotiation. There was no attempt to kind of say
23 hydrologically it's better if we pump down here; so we'll
24 put more of the demand down at this end of the island and
25 less at this end. It was essentially a negotiated

1 agreement. So everybody effectively had to share the pain
2 of the reduction.

3 At the time that was done, that required
4 approximately a 4-mgd cut or essentially a supplemental
5 supply across the island of about 4 mgd. Since that was
6 done, the island's population has probably increased by 30
7 percent, 40 percent, and they have made up that difference
8 with supplemental supplies. They use -- all their effluent
9 is reused on the island for irrigation.

10 Off the island we use virtually all of our
11 effluent in southern Beaufort County for irrigation of golf
12 courses, and we are moving into basically a delivery of
13 effluent to the lot in new developments that are starting
14 to occur in southern Jasper County.

15 Beaufort-Jasper was created essentially because
16 of the problems on Parris Island and the military bases in
17 Beaufort because it was an effort to ensure that we didn't
18 lose those bases as their water supplies faded away. And
19 we started pumping surface water there in '65, and slowly
20 but surely all the growth generally that has occurred in
21 Beaufort County has been accommodated on surface water.

22 And we have invested heavily in wastewater plants
23 and very high-quality wastewater effluent so we can do
24 irrigation. And we are going to take essentially, Carol,
25 the same fundamental approach that you have described,

1 looking at all of our water supplies and doing more or less
2 an integrated water-resources plan which deals with
3 available water supplies but, also, with demand and how we
4 manage demand on the system so that we can effect, you
5 know, conservation.

6 But it's also a timing issue, and there's other
7 variables that go into that equation. Then we are going to
8 start that as a utility, that formal process, in the
9 spring. We are kind of using essentially a western water
10 model, planning model, to do that.

11 MS. HAGOOD: Do you want to add anything to that,
12 Alton?

13 MR. BOOZER: Well, I would just add, going back
14 to Carol's part of her initial question about seven years
15 with the Sound Science Initiative, as I recall, part of the
16 issue then, too, was that there were two different models
17 that were being debated, one that --

18 DR. COUCH: Right.

19 MR. BOOZER: -- South Carolina had worked more on
20 that kind of gave one picture, one that Georgia USGS had
21 worked on that kind of gave a little different picture. So
22 part of that agreement between Lewis Shaw and Harold Reheis
23 and the states was let's work toward one model that we
24 could all agree on, which is what we have had presented
25 this morning.

1 And in that interim, since we weren't doing any
2 additional reductions past what we were planning to do here
3 and what was on the table, the intent was don't let it get
4 any worse but let's don't tell people to start making cuts
5 until we got the best science available to say what the
6 answer needs to be. So the moratorium, the whole thing is
7 as-is until we have that answer.

8 So that's the way we entered into the agreement
9 with Georgia to head forward on the Sound Science
10 Initiative.

11 MR. BOARDMAN: Hearing that, might it be
12 beneficial for me, being a lay person and listening to Dean
13 talk, is to have bullet-point slides like this on Georgia
14 and South Carolina, what we have each done? Because, you
15 know, I have learned a lot more about what Georgia has done
16 obviously. I have heard you, Dean, on what South Carolina
17 has done.

18 I think that would be helpful for the Committee,
19 it would be helpful for me, to have that and be able to
20 refer to that, because I think what we're talking about
21 doing is expanding upon some of those initiatives and/or
22 tweaking them, and we can learn from what South Carolina
23 has done; South Carolina can learn from what we have done.

24 MR. COUCH: Good. We can work to put that
25 together and share that back out.

1 MS. HAGOOD: And do it like -- a chronological
2 listing helps me --

3 MR. BOARDMAN: That would help. I'm trying to
4 get it all in my head.

5 MS. HAGOOD: -- kind of get the history and the
6 evolution and where we go next together.

7 MR. BOOZER: In fact, we have shared pretty much
8 what we have done in South Carolina between the DHEC and
9 EPD --

10 MR. BOARDMAN: Oh course, yes.

11 MR. BOOZER: -- staffs in the past as we worked
12 through the Sound Science Initiative. But we can put that
13 in bullet form; that's no problem.

14 DR. COUCH: Yeah.

15 SENATOR WALDREP: I just needed to know that
16 there was -- had been an ongoing water study I think you
17 alluded to somewhat earlier that Georgia has been going
18 through, pretty comprehensive. Has that been completed?

19 DR. COUCH: I think what you're referring to is
20 that we are in the middle of preparing a state-wide water
21 resource management plan.

22 SENATOR WALDREP: Okay.

23 DR. COUCH: And we are on track and well along to
24 provide the first draft of that plan by July of 2007.

25 SENATOR WALDREP: Okay.

1 DR. COUCH: And that's important, and I have
2 alluded to it because one of the things I'm intentionally
3 trying to do is we are crafting policies that would apply
4 state-wide. We are also recognizing that we need to have
5 some regional variation in some of those policies because
6 different areas of the state are at different levels of
7 stress or concern relative to either surface and/or
8 groundwater.

9 So one thing that I'll make sure all of you have,
10 all of the materials, resources, the policies that we're
11 discussing that would be applied, are -- it's all up on a
12 web site at Georgia EPD. So it's available. If you're
13 interested at a future date at another meeting to have a
14 briefing on that, that might be beneficial to do, but
15 that's what I was referring to.

16 MR. MOSS: One other point, Carol, to your point
17 about the river. The presentation that I have this
18 afternoon kind of lays out, hopefully, a series of ideas.
19 I'm not going to call it a plan, but it's a series of ideas
20 and thoughts that, hopefully, will help us start to frame
21 an approach to that issue between the two states in terms
22 of how we really establish what kind of water we need,
23 where, and for what purpose.

24 DR. COUCH: Well, I guess I'd like maybe before -
25 - and we only have a few minutes before we need to break

1 here, but -- and I don't think we can get it done in seven
2 minutes, but I think it's very important that at some point
3 we say where does this group go on this particular subject.

4 MR. MOSS: And I have a proposal to make --

5 DR. COUCH: Okay. Excellent.

6 MR. MOSS: -- for you on that.

7 MR. McSHANE: But you want to do that in concert
8 with some of your other -- or do you want to do that now?

9 MR. MOSS: Well, in terms of the groundwater
10 problem.

11 MR. McSHANE: Because, I want to take 30 seconds,
12 then, and just give what is sort of an observation that has
13 occurred to me in just listening to the discussion on this.
14 It's the first time that these two groups have seen this
15 presentation. And respective of whenever, whichever state
16 had sort of conservation plans, and that's a broad term
17 that I'm using, whether it was '97 or even recently, I
18 think this says -- "this" being the model, says that we
19 need our states to actually implement this into that.

20 So it may be that we each need to be looking at,
21 no matter when they were enacted, that that may not be
22 enough.

23 DR. COUCH: We need to reassess.

24 MR. McSHANE: Absolutely. And I think that needs
25 to be -- for the record, since we have now seen this model,

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1 we can't set it aside, Dorothy, thank you for what you have
2 done; we need to --

3 DR. COUCH: Oh yeah. No, no, no, no. I think
4 that one of the things we have anticipated is the need for
5 additional scientific studies, maybe some more focus
6 things, and that agenda needs to be developed for future
7 work. But we can't wait for future research to help craft
8 what is, you know, a consensus of, well, what do we do
9 responsibly, given the knowledge that we have now.
10 Because, I mean, it's going to be a hard conversation
11 because, you know, there's cost to all of this. And so it
12 has to be something that --

13 MR. McSHANE: And I'll be the first to put on the
14 table, looking at my and my colleagues' staff, that this is
15 something that I would have an expectation that the state
16 agencies are going to be looking at, reviewing that. And
17 it is going to be not an easy conversation. It's going to
18 require a commitment to at least have some open and honest
19 discussion of what we need to do internally, as well as
20 what we may have an expectation of what our neighbors are
21 going to do.

22 DR. COUCH: Well, I guess to that point I just
23 want to commend both our staffs because I think we have
24 extremely good working relationships, and we have had that
25 historically and I'm sure that will continue.

1 One thing, if you just look percentage-wise, you
2 know, over the last seven-year period without state
3 policies that would guide it, with the leadership locally,
4 there has been a 10-percent reduction in Georgia's use of
5 the Floridan aquifer in this area. We're scheduling
6 roughly another 10-percent reduction. So if that is
7 executed by 2008, we would be down at a little less than 60
8 mgd at that point in time.

9 And let's, just for talking purposes today, say,
10 well, let's take this 50-percent reduction and apply it in
11 both areas and apply it to Georgia. Well, that would say
12 that at 50-percent reduction we would be down at 30 mgd.
13 And although I think I get it from the presentation today,
14 that means that there is still intrusion going on. So I
15 have no doubt that we need to be at some benchmark out
16 there of agreed on implementation of reduction and we need
17 to craft that.

18 But the next steps that could be taken for
19 reductions that get us from a 60 mgd to some level below
20 that has to be a conversation and a plan that is guided by
21 what does the science say that we -- what is the bang for
22 the buck, how big is the buck, and is the pain worth the
23 pleasure. And I'm not sure I've got that completely in my
24 brain today.

1 And, in any regard, the work that we are doing
2 this year to determine the amount of additional demand that
3 might be reduced through conservation and reuse is going to
4 help inform part of a diversified strategy of reduction and
5 demand management. But to implement any of the
6 infrastructures is going to require, even under the best
7 circumstances, 10 to a dozen years, given the history of
8 how these things play out.

9 And that's not to say we will put the decision
10 off. It's just that we need to realize that we need -- we
11 are putting in momentum today, a lot of potential capital
12 investment and dramatic changes for communities that are
13 going to take some time to execute. There is no silver
14 bullet to it. It's a little like the ships going off --
15 turn off the great powerful engines on these ships and that
16 ship continues to move for a period of time. It just
17 doesn't stop.

18 SENATOR WALDREP: One thing I wanted to just say
19 before I can hold a thought -- sometimes I can't hold a
20 thought. In all that we have been talking about generally,
21 so much of the onus, I guess you might say, seems to be on
22 Georgia. And I don't mean to unduly emphasize that. But I
23 would like to know what Georgia's expectations are, of
24 course, of South Carolina. What do you think that we can
25 do to help you?

1 That just occurred to me that somehow or another
2 we need to completely understand that, you know, we have
3 got a reciprocal problem. And I don't know, really, the
4 answer to that, and I haven't really discussed it with my
5 Committee. But just things that we need to be thinking
6 about that we can reach your expectations, you know, in
7 this process from our side.

8 The reason I say that, it just seems like we have
9 been kind of shifting an awful lot of burden on Georgia in
10 some way. We don't mean to do that, you know, because we
11 are looking for a solution. But because you -- I think
12 it's obvious that, you know, the Savannah area, you know,
13 you've got much more population and much more use as
14 opposed to ours, which is growing, of course. So I just
15 thought I would make that.

16 DR. COUCH: Yeah. Well, I think -- I'm sure we
17 very much appreciate that question in perspective. And so
18 why don't we hold that as we are maybe talking more --

19 SENATOR WALDREP: Okay.

20 DR. COUCH: -- about the process moving forward.

21 And it is time to break or lunch, Dean. So maybe
22 we could -- you have a proposal, hopefully, but I don't
23 know that maybe now is the time to --

24 MR. MOSS: Well, let me just put it on the table

25 --

1 DR. COUCH: Okay.

2 MR. MOSS: -- and we can think about it and --

3 DR. COUCH: Hold discussion for later.

4 MR. MOSS: -- talk about it after lunch. But my
5 proposal is essentially that we form a two-person team from
6 each state and that we commission those four people to meet
7 fairly intensely between now and the end of the year and
8 determine -- essentially attempt to develop a schedule in
9 pumping for reductions in pumping by both states so that
10 plume growth can be stopped as quickly as we reasonably
11 can. And we understand, having said what I said before,
12 about the lag times on all these variables and other
13 things.

14 I think we have to have a schedule. South
15 Carolina wants, feels generally that we need to stop growth
16 of the plume as quickly as we can. We know we're not going
17 to get rid of the plume. But to the extent we can stop the
18 movement of that plume, if you look at those wells on that
19 map behind you and you see how close essentially those
20 wells -- that enormous number of wells are on Hilton
21 Head --

22 MR. BAIZE: That's actually measured -- that's
23 not a model output. That's real monitored measured --

24 MR. MOSS: As of what year, David? Is that '04?

1 MR. BAIZE: It may be a little more recent than
2 that, but it's in that time frame.

3 MR. MOSS: So it's our objective to -- as quickly
4 as we reasonably can is to stop the movement of that -- of
5 those plumes. We'll assume at this point we're dealing
6 with two. We understand that in order to have an effect on
7 those plumes that we are going to have to do things on
8 Hilton Head Island, as well; there's no question about
9 that.

10 But the process, I think, is going to require us
11 to get together and work on a technical level and a policy
12 level between the two groups fairly intensely in order to
13 try to develop a schedule. And then we can -- then at
14 least we have something we can talk about and we can bandy
15 back and forth.

16 I think we've also got to continue to study the
17 vertical-movement problem, and I think both states need to
18 commit as quickly as we reasonably can to whatever we need
19 to do to do that.

20 MR. McSHANE: Like they're doing on the Calibogue
21 Sound --

22 MR. MOSS: Yes.

23 MR. McSHANE: -- and the marsh between here
24 and --

1 MR. MOSS: The study that we have been talking
2 about carrying on to the next level.

3 MR. BELL: Dean, the two-person for each state
4 would obviously have to have EPD and DHEC technical
5 support.

6 MR. MOSS: Yeah. I mean, my attitude --

7 MS. HAGOOD: Yeah.

8 MR. MOSS: -- would be I'm not necessarily even
9 saying they need to be members of this Committee right now.
10 Maybe one Committee member and one, you know, technical
11 person. I mean, I think that would be a question we can
12 work out at this point.

13 The other thing is I think -- and we have talked
14 about this a little bit, is that the uncertainties are
15 significant. And so, to me, the schedule -- the process
16 needs to be -- involve a constant reevaluation of the data.
17 We don't know necessarily what the impact of reductions --
18 we have modeled it and we have given it our best guess, but
19 we should have a process whereby we monitor and reevaluate
20 that data, I would say at least on an annual basis, to see
21 what is actually happening in those areas.

22 So, essentially, that's my proposal.

23 DR. COUCH: Okay.

24 MR. MOSS: I think that the quicker we can get a
25 schedule that we can point to, both from the perspective of

1 the public and particularly from, of course, South
2 Carolina's perspective from the perspective of those
3 utilities and customers on Hilton Head Island that right
4 now are taking the brunt of this problem, I think the
5 better off we are all going to be. So that's my --

6 MR. SPITZ: And, Carol, one tiny observation
7 about how significant this morning really is. We all now
8 recognize that pumping causes future pollution. I think
9 everybody on all sides agrees that pumping in South
10 Carolina and Georgia, just pumping, causes pollution, and
11 that reductions in pumping causes less future pollution.
12 Those relationships are truly significant, leaving aside
13 all the other details.

14 DR. COUCH: Well, and I think that that knowledge
15 was before us before this morning, as well. And that's
16 what informed us in the plan.

17 Here is something we might do. I believe that
18 there may be some other follow-up steps in addition to this
19 particular process, and we have some time on the agenda
20 this afternoon. I guess as we collect from both the TMDL
21 discussion and the water law discussion some next steps,
22 that we put them kind of together and look at them as a
23 whole and come back to this at that point in time.

24 SENATOR WALDREP: Fine.

25 DR. COUCH: So would that be okay?

1 MS. HAGOOD: Yeah.

2 MR. TANNER: If I could just make one point about
3 what you said which I think is something we certainly
4 should give due consideration to. I'm troubled a little
5 bit though that we go off and say, okay, we're going to
6 concentrate on reducing pumping. Well, what's the
7 alternative? And the alternative is going to be -- one is
8 to try to be more efficient in use of water, generally
9 speaking. But the other one is -- the alternative is
10 probably going to be surface water. That has an impact, as
11 well. And I don't think we need to resaddle it.

12 So I don't think you can just say we're going to
13 in isolation reduce pumping and we're going to move to
14 surface water without understanding that surface water is
15 going to also become an issue in both states.

16 MR. MOSS: And I'm not prejudging necessarily --
17 I'm not prejudging what an alternative water supply should
18 be or whether necessarily the pumping reductions can be
19 accommodated in other ways. But the fact is that, at least
20 on the Beaufort-Jasper side right now, we are growing eight
21 to ten percent a year in new water demand. And my
22 expectation is that the Savannah metro area may not be
23 quite that high, but it's not very far behind.

24 And so we are not dealing -- if we only had to
25 solve the problem for the people that are here now, that's

1 one thing. But we are not doing that. We are solving a
2 problem which will continue to grow in intensity
3 exponentially. Unless we close the gate somewhere, the
4 number of people that want to live in this metropolitan
5 area -- and I say we are one metropolitan area here; we are
6 both drinking out of the same cup -- we've got to figure
7 out a way to deal with it.

8 MR. BELL: I'd like --

9 MR. MOSS: Pumping is the issue right now.

10 MR. BELL: I'd like to respond to what Joe said,
11 but back to the counselor on pumping. There are other
12 alternatives and going to the Lower Floridan. And we've
13 got some cases that doesn't run a lot more than the Upper.
14 Now, unfortunately, the farther to the north you get, to go
15 to the lower, which you call the middle, you have to have
16 RO. But on the Georgia side we can go in most cases -- I
17 mean, you would have to test.

18 And then you have the Cretaceous, and that
19 Cretaceous gets fairly expensive because you're talking ten
20 to twelve, thirteen million dollars for a Cretaceous well.
21 So there are other alternatives --

22 DR. COUCH: There's a --

23 MR. BELL: -- and still pump.

24 DR. COUCH: -- suite that needs to be there,
25 yeah.

1 Well, let's break at this point. We have lunches
2 that are provided here.

3 (Lunch recess from 11:37 a.m. to 12:13 p.m.)

4 DR. COUCH: The next part of our agenda is
5 turning to a subject that we have only glanced on but is an
6 extremely important component of what we need to be
7 focusing on between the two states, and that is the quality
8 of the river.

9 And I would like to introduce Linda MacGregor,
10 who is coming up. Linda will be providing the
11 presentation. This is Linda's first time being with this
12 particular group. And let me just explain Linda's role and
13 how important it is.

14 Linda is the Chief of our Watershed Protection
15 Branch in EPD, and that's a new name, by the name,
16 relatively new. We used to have a Water Resources Branch
17 and a Water Protection Branch. And I have moved over the
18 last year and a half to combine both branches under one
19 leadership and to rename it Watershed Protection. So we
20 have both -- under Linda's leadership within the
21 department, both water quality and quantity-related
22 programs and activities.

23 One thing we are not prepared to announce today
24 but very soon is that, in addition to those sorts of
25 internal arrangements and how we conduct our business on

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1 water resources, we are about to announce the hiring of
2 five new assistant branch chiefs under Linda's guidance.
3 Each of those are assigned to one of several aggregated
4 areas of the state.

5 There is going to be a new branch chief announced
6 this week for the Savannah and Ogeechee Rivers. That
7 individual's job is to honcho results and outcomes. So
8 it's a new set of responsibilities. So there will be
9 somebody that will be working very actively on these issues
10 that will be -- whose single focus will be to get it done.
11 So more on that later.

12 I would like to turn this over to Linda at this
13 point in time who will give us a presentation.

14 MS. MacGREGOR: Thank you very much. Well, not
15 very unlike the discussions you had this morning, I give a
16 number of presentations where it's regulatory bureaucracy
17 at its best and it's a lot of acronyms and technical mumbo-
18 jumbo, but no topic rivals this one.

19 So what I have put together today is a summary of
20 where we have been, where we are, what it means, and where
21 we are going. And I don't have a lot of slides. I don't
22 have a lot of technical information in this presentation.
23 So I would invite you to interrupt me if you want, and then
24 when I am finished, we can have more conversation. And if

1 you want to know some things that we didn't present, we can
2 try to share that information.

3 Also, we are working together with the South
4 Carolina DHEC on this and EPA. So at the risk of putting
5 words in their mouth, I hope that they won't be sending me
6 any signals from the back of the room and go, oh no, I
7 can't believe you said that.

8 First, just the where. I mean, we are aptly
9 located for this conversation because the stretch of water
10 that we are most concerned with is right out the window.
11 But the area of interest goes all the way up to Thurmond
12 Dam. So it includes this area that we share down the
13 Savannah River.

14 And just to put it in perspective here, you can
15 see where the relative discharges are in this segment. And
16 this slide says that the share is 90-10. I think that's a
17 permitted number, and that the actual recent flows are more
18 97-3. So that's sort of the existing situation that we are
19 dealing with.

20 Now, how did we get to where we are? And I
21 started sort of in the late '80s. Prior to that the
22 Savannah River was actually designated as an industrial
23 water and did not have a dissolved oxygen standard. When
24 EPA changed the focus and asked states to meet fishable and
25 swimmable in all waters, the designated use of the Savannah

1 River was changed to coastal fishing, and Georgia adopted a
2 dissolved oxygen standard in 1989.

3 In 1994, only moments later, EPA disapproved the
4 standard. And that created a mandatory duty for EPA to
5 promulgate a new standard in some reasonable amount of
6 time, -- I can never remember if it's 30 days or 60 days,
7 but it's something like that -- which they did not do.

8 In 2002 we were assessing our monitoring data and
9 preparing our 2002 303(d) list, which is our list of
10 impaired waters. EPA said that we needed to include on our
11 list of impaired waters the Savannah River because we had
12 data that indicated that our disapproved standard was not
13 being met. Okay? Now, I didn't say it was going to make
14 sense, but I told you I would tell you where we were.

15 And as most of you know, once a water goes on the
16 303(d) list, that puts it in the TMDL world. And we --
17 under our lawsuit, the lawsuit between the Sierra Club and
18 the EPA on TMDLs, we split up TMDL preparation
19 responsibilities with EPA, and EPA took the responsibility
20 for developing the Savannah Harbor DOTMDL, which at the
21 moment is the last of the TMDLs under the Sierra Club
22 lawsuit. So, as you might expect, EPA is rather anxious to
23 close out that lawsuit.

24 And, of course, we are going to continue the work
25 on impaired waters and TMDLs and TMDL limitation plans, but

1 we would rather and EPA would rather, and I think I share
2 their view that would rather do it not under the
3 jurisdiction of the Court but, rather, because it's the
4 right thing to do as an administrative process.

5 So EPA is working to finalize the TMDL and
6 expects to issue it very soon. We are working with EPA --
7 that is, South Carolina DHEC and Georgia EPD are working
8 with EPA on what is it going to look like. We have just
9 received EPA's draft and are in the process of reviewing
10 it. But, as you know, because I think many of you have
11 reviewed the draft, it will require serious reductions of
12 discharges to this stretch of the Savannah River in order
13 to meet the limit.

14 So what are we doing next is that we are going to
15 revise our dissolved oxygen standard. We hope in our
16 planning and have agreements to work with South Carolina
17 DHEC and EPA to do that so that it's an approvable standard
18 and so that our standard and South Carolina's standard is
19 compatible, if not identical.

20 And following the promulgation of a new standard,
21 then we will update and revise the TMDL. So at that point
22 we will have something that makes more sense than talking
23 about this craziness of not meeting something that wasn't
24 approved.

1 So I have said most of this already, except that
2 this process of adopting a new standard and doing the TMDL
3 will involve a lot of stakeholder participation. And I'm
4 going to come back -- I had another slide -- in a minute
5 about who the stakeholders are and some initial thoughts
6 about how we are going to do that.

7 What does this mean for right this second? So
8 right this second we have this disapproved standard. South
9 Carolina has a different standard. You know, we have a
10 TMDL that is in draft and is about to come out in final.
11 And while we are still working on the final language, it's
12 going to say you've got to do a lot. And it's ultimately
13 going to say something about that we are in this process of
14 updating it to make it a better standard and a better TMDL
15 than the one we have today.

16 So the way I understand it, we are still in some
17 conversations about these things, but existing permits are
18 going to be extended as opposed to reissued because
19 reissuing them without serious reductions would not be
20 consistent with the TMDL. And we are working with EPA to
21 figure out an interim strategy so that we can use the model
22 that we have all been working on, but they have been taking
23 the lead on, we want to use that model to determine what
24 discharges where might be allowed.

1 So if there are some places where the discharge
2 of the biochemical oxygen-demanding substances resolves
3 itself before it gets to the impaired segment, we should be
4 able to allow those discharges. And if we can allow some
5 seasonal discharges that don't impact the critical period
6 when the standard is being violated, well, anyway, we think
7 we can come up with some scenarios so we don't have to say
8 no to everybody all the time everywhere for everything.
9 But we need to work with EPA to see how we can use their
10 model to come up with that interim strategy.

11 So where do we need to go? And we need to
12 definitely go there together. So we have put together an
13 initial strategy for the three of our agencies to work
14 together. And I have just put up a few bullets about what
15 the roles would be for different organizations.

16 Since it's Georgia that needs to change the
17 standard, we have agreed to be in the lead on getting that
18 done as opposed to waiting for EPA to do it, and then do
19 the follow-up revisions to the TMDL.

20 I think South Carolina DHEC might do a lot more
21 than this, but initially what I had started to talk about
22 is that they would participate in the process with us so
23 that where we are going and what we are doing is
24 satisfactory to them, and then if South Carolina would make
25 sure their standard is coordinated with ours. So it may be

1 that it is fine the way it is or it may be that there would
2 be some revisions necessary.

3 And we really want EPA at the table with us, and
4 they have agreed to be there, so that they can approve the
5 standard that we adopt and work with us on revising the
6 TMDL once they have issued it here in the near-term to get
7 out from under the court order.

8 So there's a lot of stakeholders that are going
9 to be interested in what we are doing here. So there are
10 other state agencies from both sides of the river. There
11 are some federal agencies that need to be in the loop here.
12 There are two organized groups of river discharges. Upper
13 and lower maybe is one way to summarize them. And both of
14 these groups are bistate groups and they have been meeting
15 for some time. So we anticipate continuing to engage them
16 in this process. And then we think there are others that
17 have not been so engaged recently on the DO issue that are
18 in the environmental and business communities that we will
19 be including.

20 This is a schedule we put together a couple of
21 months ago, and we are learning more every day as we work
22 with South Carolina and the EPA. So we have put together a
23 two or three-year schedule, and we are in the process of
24 updating this schedule because we have learned some things

1 recently that make us think we can do this a little
2 quicker. But I haven't updated it.

3 So, anyway, there has been a lot of work already
4 done, and we need to look at that work and see if there are
5 any gaps that need to be filled or any other things that we
6 need to do.

7 And then we need to evaluate the criteria. EPA
8 has made a suggestion. We are going to make sure that that
9 is the best suggestion and then move forward with it. At
10 one time we were considering looking at a lot of other
11 options. It seems like EPA has done a lot of that work and
12 that we can probably come to a quicker resolution on some
13 criteria.

14 And then we have to go through the official
15 process of adopting the new standard and then revising the
16 TMDL. So the next time you see me this schedule will be
17 tightened up a little bit.

18 Yes, sir?

19 SENATOR WALDREP: Just a quick question. What is
20 the process for assessing these discharges? Do they go to
21 the -- it comes out of the pipe or the plant or something
22 that is discharging into the river? Do they capture a
23 certain amount of water and take it and test it or --

24 MS. MacGREGOR: Yes. Yes, all dischargers have
25 self-monitoring requirements where they -- some of the

1 monitoring is daily, some is weekly, some is monthly. But
2 all discharges do self-monitoring and turn in monthly
3 reports.

4 SENATOR WALDREP: Are they still using fleas?

5 MS. MacGREGOR: For toxicity?

6 SENATOR WALDREP: Yes.

7 MS. MacGREGOR: Yes, I think that's --

8 SENATOR WALDREP: The California fleas? Okay.

9 MS. MacGREGOR: I think it's Daphnia. I don't
10 know --

11 DR. COUCH: It's called a water flea.

12 MS. MacGREGOR: Water flea?

13 DR. COUCH: It's not a dog flea. It's a --

14 SENATOR WALDREP: No, I understood it was a water
15 flea from California --

16 DR. COUCH: Yeah.

17 SENATOR WALDREP: -- or something like that.

18 Okay. I just wondered -- so they are still using those?

19 MS. MacGREGOR: Yes, or toxicity. But a typical
20 advanced waste-water treatment plant has about 144
21 compliance -- it's well over 100 compliance points a month
22 in terms of daily, weekly, sometimes hourly, sometimes
23 monthly, things that they sample for a whole variety of
24 constituents over a period of time.

25 SENATOR WALDREP: Okay. Thank you.

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1 MS. MacGREGOR: So, sort of in summary, we are
2 going to work as a team together to adopt a new standard
3 and revise the TMDL. We are going to make the schedule
4 shorter. And we are going to have broad stakeholder
5 involvement in what we are doing.

6 DR. COUCH: A question for you, Linda.

7 MS. MacGREGOR: Yes?

8 DR. COUCH: In terms of the schedule, I think I'd
9 like to focus on that for a moment. You had two to three
10 years up on the last -- would you put that last slide --

11 MS. MacGREGOR: The last slide?

12 DR. COUCH: Yeah, the two to three-year schedule.
13 I think the schedule that you had laid out were the
14 different major components that have to work. And they are
15 sequential; there is no way to really make them in
16 parallel. That was roughly a three-year. Are you saying
17 that you're tightening it back from three years or you're
18 tightening it back from two years?

19 MS. MacGREGOR: Can I go back to the schedule?

20 DR. COUCH: Oh please, yeah.

21 MS. MacGREGOR: I think that the assessments time
22 frame is not going to take as long as we had originally
23 thought, and we will be able to get into looking at
24 criteria quicker and get to the official steps of
25 promulgating it quicker. And I think if we were just to

1 get a couple of smart people in the room we might be able
2 to do this real quickly.

3 But we do need to reach out to all the
4 stakeholders and help them along through this process. So
5 that, as much as anything else, is probably going to
6 dictate our final schedule. But I would say we could
7 probably -- we are actually working on the details of
8 tightening this --

9 DR. COUCH: Right.

10 MS. MacGREGOR: -- up right now. But I don't
11 think it's going to take us more than two years to do it.

12 DR. COUCH: So it would be sometime in calendar
13 year 2008 --

14 MS. MacGREGOR: Yes.

15 DR. COUCH: -- where a new standard will be
16 promulgated and the beginning of the revised TMDL?

17 MS. MacGREGOR: Yes, that's what I anticipate.

18 MR. BOOZER: I would just add to that, Carol,
19 from South Carolina's standpoint, DHEC, if we determine
20 through this process that we want to adopt a similar
21 standard, change ours, we have to get ours before our
22 Legislature. So at worst case, we would have ours finished
23 up by the 1st of June of 2008, hopefully a little bit
24 quicker than that, but it would probably have to go into

1 that legislative session first part of 2008 for us to get
2 it out of there.

3 DR. COUCH: I understand.

4 MS. MacGREGOR: And that may actually -- at our
5 next meeting together we have agreed on working through a
6 lot more schedule details between Georgia and South
7 Carolina. And that, as much as anything, may drive our
8 schedule in order to get to a certain point so that you
9 know what to take to your Legislature.

10 MR. BOARDMAN: I realize that you're kind of
11 early in the process. But, based on what you know now,
12 what do you think the consequences of the revised TMDL are
13 going to be? And what I mean is consequences to
14 dischargers and/or, I guess, to this group as what we
15 discuss in the future.

16 MS. MacGREGOR: I think that we are going to end
17 up with serious reductions of discharges.

18 MR. McSHANE: You can't put another discharger on
19 the river right now; is that --

20 MS. MacGREGOR: That's right.

21 MR. McSHANE: You cannot do it. Can you go to
22 the slide where you showed the map showing the dischargers
23 and the percentage?

24 MR. BELL: And when you talk about reductions
25 you're talking poundage --

1 MS. MacGREGOR: Correct.
2 MS. BELL: -- and not flow?
3 MS. MacGREGOR: That's correct. That's an
4 important point, that this is a dissolved-oxygen standard
5 and there are several pollutants that contribute to a
6 decline in the dissolved oxygen in the water. And so the
7 control is to reduce the amount of pounds of those
8 pollutants. So it is possible that additional flow could
9 go into the river but more highly treated. So the flow
10 could increase while the poundage came down; that is
11 possible.

12 MR. MOSS: I'm that one red dot on the lower --
13 SENATOR WALDREP: Is that a liquor store?

14 MR. MOSS: That's a liquor store, yes. One small
15 little waste-water treatment plant.

16 MR. McSHANE: I recently was at a meeting with
17 you, Dean, and we were informed that Jasper County has
18 56,000 housing units permitted. Permitted?

19 MR. MOSS: No, not all -- they are planned.

20 MS. HAGOOD: Planned.

21 MR. McSHANE: And I'm trying to -- and I don't
22 hear that we can add any more capacity.

23 MR. MOSS: Well, let me clarify how that works.
24 The NPDS permit on that plant is a secondary permit. And I
25 could go into it, but it prescribes a certain number of

1 pounds of biological oxygen demand, a certain number of
2 pounds of suspended solids that may be discharged to the
3 river under that permit. It at the moment does not
4 prescribe what we would call an ultimate oxygen demand,
5 which incorporates ammonia as a principal component.

6 We have asked DHEC to modify that permit and show
7 an ammonia level. With the pounds that ultimately result
8 after that is done and we determine what an ultimate oxygen
9 demand is, we can take that plant, with technology, to
10 accommodate -- it's a one-million-gallon-a-day-permitted
11 plant right now; 1.1, I think. We can take that plant well
12 above five million gallons a day by increasing the
13 technology of treatment.

14 So inside the same loading that we currently have
15 permitted, without increasing the loading into the river,
16 we can accommodate a substantially greater number of -- at
17 least we can buy ourselves probably 10 to 15 years of
18 growth inside that loading while the rest of these issues
19 get sorted out.

20 We also obviously are going to reuse on a
21 substantial portion of the waste-water. So we feel that we
22 can -- that we can work inside the permit we have now to
23 accommodate the growth we expect to see at least -- I mean,
24 I can't tell you what the growth is going to be, because
25 every time I guess, I'm wrong, and it's always twice, and

1 it hasn't been that way for 10 years. But based on what we
2 know now, we can work with DHEC and get that done; we will
3 be there.

4 Then we would have to wrestle with the notion of
5 cut. And if the notion is that the current amount of
6 capacity then has to be cut back, then that brings me to
7 the issue, I think, which is really after we have held
8 hands, Linda, and we have walked down the road into the
9 sunshine with a new standard and a TMDL, we still confront
10 the issue that we have at the bottom of that slide which is
11 Georgia has 90 percent of the permitted load, South
12 Carolina has 10 percent. And I think -- you're right; I
13 think the actual load going in is closer to 95-5 or 97-3.

14 Then we have to sort out -- and that will be, to
15 me, the toughest part of the problem is figuring out from
16 South Carolina's perspective how we can acquire a greater
17 share of the available capacity. And obviously it's at
18 this point a less-than-zero-sum gain, which means that,
19 regardless of what happens, for South Carolina to get
20 another pound that means somebody in Georgia is going to
21 have to give up a pound and maybe a pound and a half.

22 MR. BELL: But, Dean, to your credit you'd
23 probably have another dozen red dots in Beaufort and Jasper
24 County if you were not going to 100-percent reuse, --

25 MR. MOSS: True.

1 MR. BELL: -- which is a real plus.

2 MR. MOSS: Yeah, and that has -- we are using it
3 the same way that Carol has articulated and of the ground-
4 water plan, which is that it does two things. It's a
5 water-quality management tool, but it's also a water-
6 resources management tool, and those two things come
7 together and make it a strong case for taking effluent
8 through a very high level of treatment and then using it
9 beneficially across the region.

10 SENATOR WALDREP: Dean, my understanding was that
11 a couple of paper companies are, in effect, using up most
12 of that load. Is that correct?

13 MS. MacGREGOR: Yes, that's correct.

14 SENATOR WALDREP: Is it International Paper?

15 MS. MacGREGOR: Yes.

16 SENATOR WALDREP: And how much capacity are they
17 using from Georgia?

18 MS. MacGREGOR: I didn't look up those numbers to
19 refresh my memory, but it's a large percentage.

20 SENATOR WALDREP: More than 80 percent?

21 MS. MacGREGOR: I don't know.

22 SENATOR WALDREP: Okay.

23 MR. BOOZER: I think it's about 86. From the
24 numbers I have seen, 86 percent.

25 SENATOR WALDREP: Okay.

1 MR. McSHANE: I'm sorry. I couldn't hear.

2 MR. MOSS: Eighty-six percent.

3 MR. BOOZER: Eighty-six percent from the two.

4 MS. HAGOOD: For two users, right?

5 DR. COUCH: Talking about International Paper and
6 the Georgia Pacific plant together, combined.

7 MR. McSHANE: Use 86 percent of the --

8 DR. COUCH: Well, that's what Alton is
9 referring --

10 MR. BOOZER: Those are the numbers that were
11 shared by EPA to us.

12 DR. COUCH: Yeah, I think that's about right.

13 MR. MOSS: Linda, I guess the other problem
14 which, of course, is very surprising to the good people in
15 Augusta is that their activities have, at least based upon
16 the modeling that has been done, still a fairly significant
17 effect on what happens in the harbor.

18 MS. MacGREGOR: Yes, you are correct.

19 MR. MOSS: That we can find their wasteload --
20 evidence of their wasteload here as we sample in this part
21 of the river. And that was a -- I think that was a
22 significant shock to a lot of people when that data came
23 out a couple of years ago.

24 DR. COUCH: Linda, could you talk a little bit --
25 and this may be getting into subject matter that, you know,

1 I didn't ask you to prepare to talk about, but I think we
2 at least need to discuss in part today -- this is 90-10
3 percent, with some modification, of permitted load. This
4 is the permitted load of an equation that also includes
5 loading that comes in from non-point sources. And the TMDL
6 -- what is the split between point and non-point-source
7 loads contributing to the --

8 Do any of you remember that or know it?

9 MR. MOSS: You mean in the draft document?

10 DR. COUCH: Yeah.

11 MR. McSHANE: You're trying to articulate the
12 split between -- I just couldn't --

13 DR. COUCH: Non-point-source and point-source
14 loading.

15 MR. McSHANE: Into?

16 DR. COUCH: In the TMDL. The reason I'm
17 interested, even if we don't have exact numbers, you know,
18 this is kind of a what's-the-size-of-the-bread-box exercise
19 right now. The need to promulgate a standard and a
20 strategy for the point-source loading and the reductions,
21 regardless of what share of that capacity.

22 One of the other areas that I think both states
23 need to be thinking hard about is that if the Savannah
24 River is like the issues we're facing in other watersheds
25 in Georgia, by way of example, the non-point-source load is

1 increasing substantially. And those aren't, of course, as
2 you know, regulated by permitted -- by permits in this way;
3 it's regulated through Stormwater Management and PDS
4 permits. And some of it has no effective regulation but is
5 addressed under our current approaches through, I guess,
6 what I would call our voluntary best-management practices.

7 MR. MOSS: Based upon the numbers, the total --
8 and this is out of the draft that EPA issued in '04. The
9 total of BOD -- ultimate BOD loading in the river from
10 point sources is 769,000 pounds a day. The natural
11 background loading is 150,000 pounds a day from the marshes
12 and 85,000 pounds a day coming in from upstream sources,
13 and those are natural background.

14 And their statement is the vast majority of the
15 non-NPDES loadings, the non-point-source loadings, of
16 oxygen-demanding substances are from natural background
17 sources, including detritus transported in the stream,
18 detritus from marsh areas flowing directly into the harbor,
19 and tidally transported detritus from the ocean.

20 DR. COUCH: Okay.

21 MR. MOSS: So they are not accounting for much in
22 the way of stormwater inflow from Augusta, North Augusta --

23 DR. COUCH: At the present time.

24 MR. MOSS: At the present time for Savannah. I
25 mean --

1 MS. MacGREGOR: And I think the reason why that
2 is true is because this is -- the critical period for
3 dissolved oxygen is at low-flow periods. So at that moment
4 there is not a stormwater influence. So the stormwater
5 influence would come from these background issues you have
6 read. So it's not that they're not there, but they are
7 what's coming out of the marshes and from other places
8 because it's -- the critical period is a dry time of the
9 year, not a wet time of the year when stormwater is a
10 direct contributor.

11 MR. MOSS: Linda, I have another question which
12 is a little bit off this subject. Based upon what we know
13 otherwise about water quality in the Savannah River in
14 terms of non-BOD-related type variables, how would you
15 characterize the water quality of the Savannah River
16 generally?

17 MS. MacGREGOR: I don't think the Savannah is
18 listed for any other parameters, but I would say that
19 nutrients are a growing area of concern. And Georgia
20 doesn't have any nutrient standards on Savannah River right
21 now. I don't know if South Carolina does. But we will at
22 some -- I mean, EPA has asked us to work on nutrient
23 standards. And I think as we work on that, what we are
24 finding is nutrients are an area of concern. There's just
25 no impairments because we don't currently have standard,

1 and that's how we determine impairments is against the
2 standard.

3 So I would say it's an area of interest, but it's
4 not an impairment, because we don't have the standard. But
5 eventually we will be developing over the next several
6 years nutrient standards, and I won't be surprised if that
7 is an issue.

8 DR. COUCH: Alton, do you have phosphorus
9 standards for any of the lakes?

10 MR. BOOZER: We do have a numeric standard for
11 nutrients for lakes. We do not have a numeric standard for
12 rivers and streams yet. We are working on that. We do
13 have narrative standards that basically still say that
14 aquatic life and recreation uses have to be protected. So
15 we can still use that narrative. If we identify nutrients
16 as a source of the problem, we can still address those.

17 The only other thing I can think of from our side
18 is we do have mercury fish advisories --

19 MS. MacGREGOR: Yes.

20 DR. COUCH: PCB, yeah.

21 MR. BOOZER: -- for -- yeah, for just mercury --

22 DR. COUCH: Mercury? Okay.

23 MR. BOOZER: -- on our side. Well, on further up
24 in Lake Hartwell and all we've got PCBs, as well, but in

1 this stretch we're talking about here we do have mercury-
2 in-fish advisories.

3 DR. COUCH: As well as Georgia.

4 MR. MOSS: As well as every coastal stream --

5 DR. COUCH: That's true. That's right.

6 MR. MOSS: -- down the coast.

7 MR. McSHANE: I just want to make sure, if I
8 could, Carol, did I hear Linda say -- I wrote down a
9 portion of the state serious reductions of discharge will
10 be needed. Is that in terms of the EPA's draft; you gave a
11 summary of what you think the EPA's --

12 MS. MacGREGOR: Yeah. Can you say that again?

13 MR. McSHANE: Serious reductions of discharge
14 will be needed. I want to make sure I heard that.

15 MS. MacGREGOR: Serious reductions of oxygen-
16 demanding load.

17 MR. McSHANE: Okay.

18 MS. MacGREGOR: Because, I guess that's a
19 clarification to a couple of questions that were asked
20 earlier is we could have an increase in flow as long as
21 there was a decrease in load.

22 MR. McSHANE: Oxygen-demanding load.

23 MS. MacGREGOR: So it's like how sweet is your
24 tea.

1 MR. McSHANE: Well, in South Carolina we like it
2 very sweet.

3 MS. MacGREGOR: In Georgia, too.

4 MR. McSHANE: All right. So then, it's a fair
5 statement serious reductions of oxygen-demanding load will
6 be needed?

7 MS. MacGREGOR: Yes, that's a true statement, as
8 I understand it today.

9 DR. COUCH: One of the things that maybe just
10 focus on for a second is in the comments received by EPA on
11 the initial draft of this TMDL -- and this is probably,
12 Alton, what, two years ago now?

13 MR. MOSS: August '04.

14 MR. BOOZER: (Nods head affirmatively)

15 DR. COUCH: There we go, August '04. Was in, I
16 think, a letter from South Carolina DHEC commenting on the
17 original draft. And in that letter, I think, is an
18 articulation of the desire of South Carolina to -- and I
19 don't know how it's stated, but essentially that's the
20 place where I have seen it stated most publicly and
21 formally -- share at 50 percent the assimilative capacity
22 of the river. Is that a fair paraphrasing of it?

23 MR. BOOZER: I think we used the word
24 "equitable".

25 DR. COUCH: Equitable?

1 MR. BOOZER: Yeah.

2 DR. COUCH: Yeah. Well, then, it's my
3 interpretation what "equitable" means.

4 MR. BOOZER: We used to use -- we used to use 50-
5 50.

6 DR. COUCH: Fifty, yeah.

7 MR. BOOZER: That's kind of what we said
8 verbally.

9 DR. COUCH: Well, equitable is, I guess, in the
10 eye of the beholder. But suffice it to say, I would -- you
11 know, if you look at just the water yield of the river and
12 if you want to apportion its uses relative to yield,
13 there's a couple of different ways to -- but we have a baby
14 that we have split pretty darn near right up the middle as
15 far as water yield is concerned.

16 How ever we get to framing the issue of sharing
17 all of the assimilative capacity of the river, one of the
18 things that I believe is necessary is that we have a common
19 understanding and a way to measure what that assimilative
20 capacity is. You know, we don't know -- we have two
21 different measuring yards, and one of them is not even
22 proved. And so we've got to get a common measuring stick
23 in place, and then it's on that basis that we can start
24 effectively talking about sharing assimilative capacity.

1 And that's after a consideration of what has to be done to
2 reduce -- to create the capacity.

3 So where would we be able to in earnest engage on
4 that larger conversation? With the time frame that Linda
5 laid out today, we are looking at, with modification, under
6 the best of circumstances, is a two-year process just to
7 get to saying we have a common understanding of the
8 measuring stick.

9 So I wanted to cycle back on that because I know
10 that early in one of our meetings generally spoke in a
11 similar capacity was on the list of issues here. And I
12 don't know if you guys have any reaction to that. I'm not
13 sure that it's clear to me. So I would like to see in the
14 next two years, say, if we are being as timely and as rapid
15 as possible in designing that measuring stick, what we can
16 substantively work on and suggest to our governors that we
17 could do.

18 MR. MOSS: I think my observation would be that
19 it's in the interest of both states, knowing that this pie
20 that we have enjoyed up to this point is going to shrink,
21 regardless of what happens, that we actively pursue a
22 policy of making the discharges and the loads that we
23 currently have as efficiently used as possible.

24 In other words, I think your strategy, in terms
25 of moving to reuse and getting those loads to the extent

1 possible away from the river, I think we are going to
2 tertiary and certainly on this plant. We hope all of our
3 plants are basically going to -- but we've got a lot of
4 discharges up the river probably that need to be looked at
5 in terms of their efficiency, and we're going to have to
6 stretch a very small amount of assimilative capacity a long
7 way in order to continue to enjoy kind of the economic, if
8 you will, benefits that that river provides as far as
9 wastewater management.

10 So, to me, one of the things that we can work on
11 and we can work on right away is really helping those
12 dischargers to start to consider their future carefully
13 about where they need to be thinking, knowing where things
14 are going.

15 MS. HAGOOD: Carol, is this something that we
16 could be better informed on once EPA, you know, determines
17 the TMDL? I'm thinking of timing and having enough
18 information to really make meaningful discussion as opposed
19 to today. Is that a better consideration? That's from the
20 technical -- y'all give the technical side to that.

21 DR. COUCH: Well, let me try to respond to that.

22 And, Linda, you know, I'm interested in making
23 sure that, you know, you offer your perspective, as well.

24 The draft TMDL that was prepared earlier, if it
25 were to be final, if that as the version to be final, would

1 have indicated a couple of different levels of poundage or
2 loading that would have to be reduced. And I guess under
3 the most Draconian version it would be essentially 100-
4 percent reduction in loading.

5 Is that --

6 MS. MacGREGOR: That's right.

7 DR. COUCH: That's right. So there isn't a whole
8 lot of assimilative capacity to stretch.

9 What EPA has worked to do over the last couple of
10 months and, I believe, has provided to our mutual staffs is
11 taking that draft and doing another revision to it for
12 purposes of getting it finalized, I guess, toward the end
13 of October. And I have not seen the language, but what we
14 are anticipating is that that language will indicate a
15 level of reductions that are required based on the previous
16 methodologies but will have some language in there that
17 points to the fact that the implementation of the TMDL may
18 not be done until we have a new standard promulgated or
19 some such thing.

20 So if either of you can --

21 MS. HAGOOD: Did you say the end of October, --

22 DR. COUCH: Yeah.

23 MS. HAGOOD: -- which is not that far away, is
24 when EPA plans to get that revision --

25 DR. COUCH: Right.

1 MS. HAGOOD: -- completed?

2 DR. COUCH: Right. So the question then becomes
3 what do we do with it when that one is finalized, knowing
4 that, --

5 MS. HAGOOD: Yeah.

6 DR. COUCH: -- you know, we are still embroiled
7 with how is this measured and what is the right strategy
8 for reduction, which is fully contingent in its complete --
9 if you're completely detailed in that, then you need to
10 know, well, specifically how much needs --

11 MS. HAGOOD: Yeah.

12 DR. COUCH: -- to be reduced. But that target is
13 going to move on us. Even if the target moves, it's still
14 going to be a large reduction.

15 MS. HAGOOD: Right.

16 DR. COUCH: And to Dean's point, we need to be
17 working on that already, and we are.

18 Is that --

19 MS. MacGREGOR: Yes, you are -- everything you
20 said is correct. And I would just say, for thinking
21 purposes, there are sort of two periods. There's after we
22 -- well, I mean, because there is nothing between now and
23 October. Okay? So we'll start there. There is that
24 future time when we have a revised standard and a TMDL and
25 we know what the rules of the game are. And not that they

1 couldn't be revised later, but for the time they are set.
2 And then we can decide how many -- how much water there is
3 to split.

4 But then there is also this time between now and
5 then when we're sort of in a limbo period where we don't
6 have those decisions made. And if we could put everything
7 on hold, that would be one situation, but we know we can't
8 because there's lots of people that are going to want to
9 make and need to make decisions in that period before the
10 TMDL is done.

11 MR. McSHANE: Carol, would you review for me what
12 is going to be -- EPA is going to have by end of October,
13 at the very end of October?

14 DR. COUCH: Would you like to address Mike's
15 question?

16 MR. BOOZER: That's just the deadline on the
17 consent decree in the federal court to finish all the
18 Georgia TMDLs that they were sued to do. And the last one
19 is Savannah Harbor. And so they are trying to meet an
20 October 31st deadline to finalize this TMDL so they can get
21 out from under the consent decree.

22 MR. McSHANE: Just make sure I heard what my
23 expectation is in --

24 MR. BOOZER: Yeah. And that's what's pushing
25 their time frame. And as Linda said earlier, I think we

1 would all prefer to work out from under the federal courts
2 on this issue.

3 What I would just suggest to the Committee for
4 consideration would be, just as USGS came down and did this
5 presentation today that was so useful, maybe if there is
6 another meeting planned in November or whenever, as EPA, if
7 they do meet their deadline to finalize the TMDL, maybe
8 have EPA come in and present the results of that TMDL and
9 have some discussion if there has been any meetings on the
10 standard, have that discussion and spend more time on that
11 before any decision is made.

12 EPA may be even able to give some input on what
13 kind of interim permitting strategies would be allowed
14 under the Clean Water Act and some of that type of stuff
15 before we are trying to decide today without having seen
16 the final document on how to split the pie and this type of
17 thing.

18 MR. BOARDMAN: That would be helpful.

19 MR. BOOZER: Just a recommendation.

20 MR. McSHANE: Could we get Dorothy to do that
21 presentation for us?

22 MR. BOOZER: That would probably be a little more
23 technical than Dorothy was on this one, but she did a good
24 job.

1 MR. MOSS: But I guess for today the only thing
2 that I think we can do is encourage the staffs to move as
3 expeditiously as possible to push this -- to push our
4 revised -- the standards discussion and essentially get us
5 into a position where we can arguably propose an alternative
6 TMDL or a modified TMDL based on a single agreed upon water
7 quality standard.

8 DR. COUCH: I guess one thing to, you know,
9 reflect on here is that as we had some earlier conversation
10 putting together so that our governors know what are the
11 major issues, what needs to be worked on, what is the
12 process benchmark time frame for the TMDL, we still need to
13 recycle back on our earlier conversation today for the
14 TMDL, a lot of sort of high-level or policy-level-related
15 discussions and recommendations to governors can only be
16 best informed at the end result of this promulgation of the
17 standard and so forth. And so, you know, we are, as I
18 think you have -- as we have indicated already, through our
19 staffs, working on a time frame that we are going to
20 compress, and there is a process benchmark and so forth.

21 And so for this particular issue, relative to the
22 work of this Committee, I think we need to keep staying
23 informed as things move forward -- and I think your
24 suggestion, I think, is a great one -- but know that that

1 is in process and we have a plan, and that may be something
2 that both governors need to be briefed on.

3 But other than staying informed and maybe
4 periodically providing some input or suggestions to that
5 process, which is a multi-state and a federal process, I'm
6 not sure we can articulate a lot more now, but just keep
7 this as something that we keep on our radar and keep
8 briefed about.

9 SENATOR WALDREP: Are these standards consistent
10 throughout the country, the TMDL standards? Are they
11 tailored for particular areas based on aquatic life or
12 what?

13 MR. BOOZER: They are tailored for each water
14 body. They are tailored or each water body, each --

15 SENATOR WALDREP: Right.

16 MR. BOOZER: -- river, each --

17 SENATOR WALDREP: And that's based on aquatic
18 life?

19 MR. BOOZER: Yeah, the different types as to
20 whatever the standard may be in place and the different
21 types of aquatic life and that type thing.

22 MS. HAGOOD: But you're talking about a different
23 standard for the Savannah River Harbor area; isn't that
24 right? I mean --

25 MR. BOOZER: Site specific.

1 MS. HAGOOD: Site specific. This is what we're
2 talking about right there.

3 MR. MOSS: Because, right now we have one
4 standard --

5 MS. HAGOOD: Right.

6 MS. MOSS: -- that applies all the way from Clyo
7 down. I mean, that's the segment -- the river segment runs
8 from Clyo to Tybee. So we have one standard that is in
9 place for DO for that entire stretch of river. And the
10 river meets the standard above the harbor --

11 DR. COUCH: Except for --

12 MR. MOSS: -- and it meets the standard below the
13 harbor.

14 MR. McSHANE: That's, what, four miles --

15 DR. COUCH: I think six maybe, but --

16 MS. MacGREGOR: Yes.

17 DR. COUCH: This stretch here up a ways.

18 Well, I think the purpose of this particular
19 briefing, as we were talking about at our earlier meeting,
20 was just to -- I would call this let's tee it up, let's see
21 where we're at. And what I had offered at that point in
22 time is that we were working between our two staffs to come
23 back and put a frame on what needed to be accomplished in a
24 time frame, and I appreciate the efforts that both staffs
25 have done to do that.

1 MR. McSHANE: Carol, I appreciate that. And I
2 think what we have heard today is we have some not too
3 short-term sights that we can see, one being perhaps this
4 EPA draft coming the end of October on some information,
5 and I think that would be -- I believe that's valuable that
6 we know that and that we will see it relatively soon after
7 that --

8 DR. COUCH: Right.

9 MR. McSHANE: -- comes back.

10 DR. COUCH: So perhaps an action from this would
11 be to visit with EPA to see if we can get a briefing that
12 would be presenting obviously after October, and then just
13 to keep this body informed on the time frames and
14 benchmarks and the process moving out.

15 One of the things that I think some members of
16 this group might be able to accomplish, because you live
17 and breathe and work in the basin, is that as we were doing
18 the stakeholder outreach that needs to be done in here,
19 we've already recognized that there are organized groups,
20 particularly in the mid reach and down in this area,
21 dischargers who need to be informed. And it may be that
22 some members of this group can take a role in helping to
23 educate and connect to particular stakeholders. So --

1 MR. McSHANE: It would be helpful if someone
2 could identify all -- what those groups will be, who will
3 be -- who those groups consist of. Do you have --
4 MS. MacGREGOR: We will.
5 MR. McSHANE: Okay. I'd like to see those.
6 DR. COUCH: All right. Any other questions for
7 Linda or discussions on the subject?
8 MR. McSHANE: Is it going to come out on
9 Halloween?
10 DR. COUCH: Thank you, Linda.
11 (Applause)
12 DR. COUCH: Okay. Well, I don't know that there
13 is a good segue into the law, but --
14 MR. McSHANE: Carol, in the draft agenda --
15 DR. COUCH: Yeah.
16 MR. McSHANE: -- we had was there going to be any
17 portion Senator from South Carolina speaking on water
18 quality, any addition before we move on to water law?
19 DR. COUCH: Oh, I apologize. I apologize.
20 MR. McSHANE: We didn't send the name --
21 DR. COUCH: Okay.
22 MS. HAGOOD: Yeah. Do y'all want to add
23 anything?
24 MR. BOOZER: No, I think we've interjected --
25 MS. HAGOOD: Yeah.

1 DR. COUCH: Just to make sure, Alton, that in the
2 way Linda has presented it, that it is consistent with your
3 understanding, the conversations you had. So -- okay.
4 Thank you.

5 MR. McSHANE: Then, I think it would be time to
6 move into water law.

7 DR. COUCH: Okay. And I guess if the Professor
8 would be kind enough to lead us off from South Carolina.

9 MR. SPITZ: A couple of tiny preliminary
10 comments. The first, Carol is absolutely right; there is
11 no pleasant way to ever introduce the law. I can be quoted
12 on that.

13 DR. COUCH: Well, that's not what I said.

14 MR. SPITZ: Well, that's what I said, and I stand
15 by that proposition. One, I didn't know that we were going
16 to have Powerpoint available. If I knew that, I would have
17 brought some Powerpoint slides to really put you to sleep.
18 Okay?

19 Second, I have a very brief outline -- of course,
20 all professors have brief outlines -- on something dealing
21 with South Carolina law.

22 And, third, a personal apology to two former
23 students who are here, Charles Canny (phonetic), from the
24 Attorney General's Office, and Marvin Taylor, who is co-
25 counsel on this Committee. They thought, when they

1 graduated law school, they would never again have to suffer
2 through another Steve Spitz lecture. So I personally
3 apologize.

4 And then, finally, there is no test. That's
5 good. I'm going to be quick, I promise.

6 Third, we really want to get to the famous
7 Rebecca Sullivan, who is going to teach us all the
8 interesting stuff.

9 So what I did some time ago was write a very
10 brief chapter -- for the people in the audience, if you
11 want this, I will be delighted -- e-mail me; I will be
12 delighted to scan it and send it to you. I do recommend it
13 for insomnia. You just sort of try to read it and you
14 instantly go to bed. Okay? So if you have an insomnia
15 problem, this will solve it. All right?

16 There is a multi-volume treatise called "Beck" on
17 water and water rights, and in the final volume, Volume
18 VII, there is a 50-state survey of each state in the
19 country, very brief, a true skinny, if I can use that word,
20 that explains in very general terms what that state's law
21 is all about.

22 MR. BOARDMAN: And where is that?

23 MR. SPITZ: It's called Beck, B-e-c-k, Robert
24 Beck, a professor, I think, from southern Illinois. And
25 it's a six-volume -- I think it's available electronically.

1 I just didn't bring my laptop. But I know you can also buy
2 the hard-bound books if you're really interested and still
3 reading books these days. And the final volume is the 50-
4 state survey. And I am not going to bore you by walking
5 through all of it. I am going to truly hit the absolute
6 highlights. And, like I said, if you want to read it,
7 that's fine.

8 South Carolina is a riparian state. Most states
9 east of the Mississippi are. Our history goes way back
10 into the common-law. As early as 1835 South Carolina said,
11 you bet, we're a riparian state. There are some
12 interesting turn-of-the-century cases -- I have put one or
13 two in this outline -- that actually talk a lot about the
14 rights riparians have. Those are significant property
15 rights recognized in the state of South Carolina.

16 One more tiny aside. You will note at the bottom
17 of the first page it said this is my personal view. And I
18 stress the fact this is truly my personal view of what
19 South Carolina law might be. I am not a judge and I don't
20 know that everyone would agree with every statement in
21 here. And, remember, as you reflect on my personal views,
22 I hold a license -- recently I was appointed a judge in
23 some kind of hearing down in Beaufort and I hold some kind
24 of odd license, 40-41-310, 41-40-310, under the South
25 Carolina Code. I am a licensed itinerant fortune teller in

1 Beaufort County. So keep that in mind as we go through the
2 personal views.

3 All right. In addition to following riparian
4 law, one more kind of interesting aside. The current Chief
5 Justice of the South Carolina Supreme Court, when she was a
6 law student, wrote some very interesting law-review
7 articles about water law in South Carolina. They still are
8 very interesting and made for some interesting reading.
9 You can acquire rights to water in the state of South
10 Carolina -- and I am reading at the bottom of page 1011 --
11 under the South Carolina Interbasin Transfer of Water Act.

12 That is a significant piece of statutory
13 legislation that permits a variety of interbasin transfers
14 in the state of South Carolina. It's a whole separate
15 topic, that I won't go into today, about how that statute
16 actually works. So you can acquire it by owning land.
17 That's the riparian. You can acquire it by prescriptive
18 right. That's 20 years of continuous use. You can acquire
19 it under the Interbasin Transfer Act.

20 We don't have -- I'm flipping all the way over
21 already to Part II. For reasons that I can't explain, the
22 authors of this wonderful multi-volume treatise still think
23 the Roman Empire is alive and well and they have numbered
24 everything Roman Numeral I, Roman Numeral II, Roman Numeral
25 III, so on and so on. So it's delightful to know that

1 Justinian still lives, at least in the eyes of the
2 publisher of this book.

3 There is not a lot of law in South Carolina on
4 groundwater. What we have got I have briefly summarized on
5 page 1012. If I was going to pick one leading South
6 Carolina case that would be worth your reading, it would be
7 the Shockley case, where the Court said, gosh, polluting
8 groundwater is something that can get you into trouble and
9 send you to court, and the Fourth Circuit agreed. So I
10 will stop every once in a while and just point out one case
11 that you might want to take a look at if you are, in fact,
12 interested in water.

13 Diffused surface water. I'm already on Roman
14 Numeral III. See how quick I'm going? I really want to
15 get to Rebecca Sullivan. And not only that, I want to get
16 to Dean Moss' presentation, which I think is truly
17 relevant. And I don't know how relevant this is.

18 South Carolina has a pretty well-developed area
19 of law when it comes to diffused surface water. This is
20 the opposite of what you normally think with water
21 problems. Water problems. Everything we're talking about
22 is there isn't enough to go around. Diffused surface water
23 is there's too much. It's coming on my land; I don't like
24 it. There is a phrase in South Carolina that probably
25 exists in most other eastern states. It's called the

1 Common Enemy Rule. What does it mean? You can get rid of
2 all the water you want on your -- on the surface. It's
3 common. Nobody wants too much water if it's diffused and
4 not in a stream and not in a lake and all the rest of it.

5 There are exceptions. I don't know a water rule
6 that doesn't have an exception. That's worth repeating. I
7 don't know a water rule anyplace, all right, that doesn't
8 have at least one exception. If you want to read about the
9 wonderful exceptions, feel free to peruse 1014 and all of
10 its stuff.

11 I'm already up to Roman Numeral IV, navigable
12 waters. We have well-established law in this area. The
13 navigable waters in the state of South Carolina are endowed
14 with the status of perpetual public highways. The State
15 has a very significant interest in navigable waters. And
16 there is a lot of law on this area and so on and so on,
17 leading to significant public rights. I discuss that on
18 page 1015, and I'm not going to go through a lot of it.

19 Turn over to page 1016. Tidelands. There is a
20 public-trust doctrine in the state of South Carolina. It
21 is well-established. The leading case is the Cape Romain
22 case, which continues to be the bellwether in this area of
23 the law. As usual, there is at least one exception to
24 this, and that is if -- and this is hard -- you can trace
25 your land all the way back to a king's grant, then you are

1 no longer under the Cape Romain public-trust doctrine. The
2 court has had a lot of litigation about this, as you might
3 imagine. Let's keep moving.

4 Of some real significance, in my opinion, to this
5 group is the South Carolina Drought Response Act. And I
6 slow down -- I'm on 1017 -- and talk to you about this
7 because this is significant. It is hard enough to deal
8 with water rights when there is the existing water. It
9 gets a whole lot harder when there is a drought. South
10 Carolina has enacted some very significant drought-response
11 acts.

12 I won't bore you again with all the details about
13 this statute, but there are levels, all right, going from 1
14 all the way up to extreme. There are measured responses
15 and, hopefully, we will be talking hypothetically and not
16 actually about what could happen in an extreme drought in
17 the state of South Carolina because that's some pretty
18 tough medicine and it affects everybody in the area.

19 And then, last but not least, South Carolina,
20 exactly like Carol, is in the middle of looking at
21 significant water law possible changes. It is a moving
22 target and we are looking closely at a number of different
23 things. I can tell you, because I was the Chair of
24 Governor Sanford's Water Law Committee, there is
25 significant interest in this topic and in this state on a

1 regular ongoing basis. So I would certainly expect that if
2 we continue to meet there are more things on the horizon
3 for the state of South Carolina.

4 Finally, I actually give credit, all right, to
5 all the predecessors who wrote all these swell things that
6 I was happy to read and all the rest of it at the very end,
7 and I leave you with a few web addresses so you can find
8 out the real details.

9 Now, I have covered a semi-complex subject in 20
10 minutes. And I, therefore, am delighted to take questions
11 but eager to turn it over to the famous Rebecca Sullivan.
12 (Applause)

13 MR. TANNER: Talk to us a little bit about the
14 authority of the environmental organizations in the state
15 to adopt rules and regulations or whether that has to go to
16 the General Assembly, just so we understand that.

17 MR. SPITZ: You know, I am not -- I'm going to
18 defer a little bit to this. Number one, we obviously have
19 a whole bunch of regulations under a bunch of different
20 statutes, the South Carolina Pollution Control statute, and
21 that is strict liability in a number of instances and all
22 the rest of it. There are a significant number of regs
23 under the Drought Response. There are a significant number
24 of Regs under the Interstate Transfer Basin. All these
25 statutes have been fleshed out by regulations.

1 I am honestly going to either defer -- turn it
2 over to some of the people who regularly on a day-to-day
3 basis deal with that process, all right, because DHEC and
4 DNR are both here and they regularly get involved in this.
5 The answer is the General Assembly certainly plays a role
6 in the state of South Carolina.

7 Elizabeth, do you want to comment? Or Alton?
8 Alton -- I mean they spend a huge amount of their time on
9 this particular issue.

10 MS. HAGOOD: The way that -- and this is
11 different than Georgia. The way that we promulgate regs in
12 South Carolina is that they come up through staff, meet
13 approval from the DHEC Board, and then they have to be
14 approved by the General Assembly of South Carolina.

15 MR. TANNER: Before they are adopted?

16 MS. HAGOOD: Absolutely.

17 MR. SPITZ: Yes.

18 MR. BOOZER: The only case where that is
19 different is if there is a federal rule and we are making
20 no additional changes to it; our Board can approve it just
21 as the federal promulgation is out there. Now, if --
22 that's rules and regulations.

23 If somebody wants a law passed, anybody can
24 individually go to a legislator and try to get a law
25 passed.

1 MS. HAGOOD: Right.

2 MR. SPITZ: And my experience, limited as it may
3 be, is that we don't adopt too many, per se, federal rules
4 without tinkering the tiniest little bit here and there on
5 the edges.

6 MS. HAGOOD: You'd be surprised, actually, how
7 many just kind of really compliance with federal rules.

8 MR. BOOZER: It depends on the area.

9 MR. SPITZ: Right.

10 MR. BOOZER: Drinking water is usually that way,
11 a lot of hazardous waste, and some of the air stuff. But,
12 you know, it depends.

13 MR. SPITZ: That's a good professor answer; it
14 depends.

15 Other questions? Then, I am ready to sit down.

16 MR. McSHANE: Because, I'll ask Rebecca the same
17 question Joe asked related to Georgia.

18 MS. SULLIVAN: The short answer is Georgia's
19 rules do not require and regulations do not require
20 legislative approval.

21 DR. COUCH: Do we want to pass out --

22 MS. SULLIVAN: Yeah, let me pass these out. If
23 y'all don't mind, I'll keep my seat. I'll try to talk up.

24 A couple of disclaimers. I am not a professor
25 and I have not written a book about water law. I am also

1 not involved in the practical implementation of these laws
2 that Dr. Couch and her staff are on a daily basis. So I
3 will ask them to jump in any place where they think it
4 would be beneficial to the group.

5 Just to start out, Georgia law, like South
6 Carolina, water law is rooted in the common-law riparian
7 doctrine. A person whose land abuts the water is said to
8 be a riparian landowner. And every riparian owner has a
9 right to reasonable use of the water.

10 In the case of withdrawals of small amounts of
11 water in Georgia, both surface and groundwater, the common-
12 law doctrine of riparian rights still applies. However, in
13 the 1970's Georgia has adopted some statutes that apply to
14 withdrawals of large amounts of surface and groundwater.
15 So the riparian doctrine in Georgia has been modified by
16 statute to provide increased State oversight of these large
17 withdrawals. This mixture of common law for small
18 withdrawals and state law regulations that we have in
19 Georgia is referred to as regulated riparianism. And we
20 are one of about 18 states that have this structure.

21 Under this system, you know, the permits
22 determine the rights of the water users, not the riparian
23 nature of the use. Yet, the criteria by which the permit
24 applications are judged by EPD are whether the proposed use
25 is actually a reasonable use.

1 The Georgia General Assembly has enacted a broad
2 range of statutes that regulate various aspects of water
3 use in the state. I have them listed there on -- or some
4 of them listed there on the third slide, and I don't plan
5 on going through all of those.

6 Two that I do want to focus on today though that
7 directly address allocation of water in Georgia through the
8 requirement of permits is the Ground-water Use Act and
9 amendment to the Georgia Water Quality Control Act of 1964
10 that governs surface water withdrawals. Both of those acts
11 are -- they are similar in that they both impose -- they
12 both impose permit systems and they both require that any
13 user who withdraws more than 100,000 gallons per day on a
14 monthly basis from a water source in the state must first
15 obtain a permit from the Environmental Protection Division
16 of DNR.

17 Same with surface water withdrawals. In 1977 the
18 General Assembly enacted legislation that utilized the
19 State's police powers to regulate withdrawal and diversion
20 of surface waters of the state in an amount greater than
21 100,000 gallons per day on a monthly average through
22 permits. The permit system is based on the concept of
23 reasonable use. And in evaluating a permit, EPD must take
24 into consideration the extent to which any withdrawals are

1 reasonably necessary to meet the applicant's needs and to
2 grant a permit to meet those reasonable needs.

3 DNR is authorized to establish a reasonable
4 system of classification for application where there are
5 competing uses for the surface water. And in those
6 situations the Board regulations that have been enacted
7 require EPD to consider a number of factors where there are
8 competing uses. Some of those are listed on the sixth
9 page, and they include number of persons using the source,
10 the nature and size of the source, low flows during
11 drought, the kinds of businesses or activities to which the
12 various uses relate and the economic consequences, the
13 importance and necessity of the use, and prior investment
14 that people have made in the land.

15 There are clear regulations that are promulgated
16 pursuant to this law that apply when the source is
17 insufficient to supply all the applicants. There is a list
18 of priority that is set forth in the DNR regulations,
19 starting with emergency facilities for essential life-
20 support measures, then domestic and personal uses, then
21 farm uses, then industrial uses, and then we fall into
22 other uses, such as lawn sprinkling and car washing and
23 recreational use.

24 I need to start out by saying, in talking about
25 the terms of these permits, the farm-use permits are

1 treated differently in Georgia than non-farm-use
2 application. So the first couple of parts where I talk
3 about the terms of permit are for non-farm-use
4 applications, and then I will address farm-use later.

5 The duration of the surface-water permit can be
6 anywhere from 10 to 50 years, and the Director of EPD has
7 broad discretion in determining the terms of those permits.
8 Among other considerations that the Director makes are the
9 source of the supply and the type of the use. The Director
10 also has pretty broad authority in revoking and modifying
11 non-farm-use surface-water permit set forth there. There
12 is no provision for the automatic transfer of non-farm-use
13 surface water permit.

14 MR. BOARDMAN: Rebecca, could I ask a question?
15 Maybe this is to you, Carol, on that duration of permit.
16 Can you give me a flavor of some of the ones that are on
17 the high side, on the 50-year standard?

18 MS. SULLIVAN: On duration of permits?

19 MR. BOARDMAN: I'm on page 7, but we're talking
20 about -- most permits, I believe, are for 20 years or less.

21 DR. COUCH: Are these -- you're talking in this
22 case about --

23 MS. SULLIVAN: Non-farm use.

24 DR. COUCH: -- non-farm use?

25 MR. BOARDMAN: Non-farm use, yes.

1 DR. COUCH: The duration is, as it states, no
2 less than 10 years and it's at the discretion of the
3 Director to provide a term greater than that but up to 50
4 years. Quite frankly, in my tenure of three years we have
5 never issued anything other than 10 years, and I don't
6 think that there is any 50-year. So it's in there, but
7 it's not really applied.

8 MR. BOARDMAN: Okay.

9 MS. SULLIVAN: I think the law -- either the law
10 or the regulations require that if it's more than a 25-year
11 permit, the Director is going to have to make sure that
12 that is consistent with a conservation plan for the region.

13 DR. COUCH: There are some special provisions.

14 MS. SULLIVAN: There are some pretty strong
15 requirements for a permit of duration of more than 25
16 years.

17 MR. BOARDMAN: Thank you.

18 MS. SULLIVAN: Farm-use surface-water permits are
19 treated much differently than non-farm-use applications.
20 In fact, they are exempted from many of the requirements
21 for non-farm-use surface-water withdrawals. Specifically,
22 the law sets forth if you make an application -- if you
23 have made an application for a permit for withdrawal of
24 surface water for farm use, prior to 1991 and based on use

1 occurring prior to July 1, 1988 -- that is a typo; it
2 should say 1988 -- it must be issued.

3 If the application is made after July 1, 1991, or
4 is based on a use occurring after July 1, 1988, the permit
5 is subject to the same evaluation and classification as
6 required for non-farm-use application, but the permit must
7 be issued to ensure the applicant's right to a reasonable
8 use of such surface water.

9 Farm-use permits generally have no term and they
10 can be transferred or subsequent owners of the land after
11 notification to EPD. The Director's power to revoke or
12 modify farm-use permits is much more limited, as well.

13 There were some changes in 2006 to the Water
14 Quality Control Act that do create conditions on permits
15 for farm use within the Flint River Basin in Southwest
16 Georgia, including an actual permit term of 25 years, as
17 well as requiring an application fee. Other non-farm-use -
18 - all other permits -- water permits that I'm aware of,
19 none of them require an application fee.

20 DR. COUCH: Right.

21 MS. SULLIVAN: Is that correct?

22 Getting to interbasin transfers of surface
23 waters, with one exception, interbasin transfers are
24 allowed in Georgia. In 2001 the General Assembly passed
25 the Metro North Georgia -- Metropolitan North Georgia

1 District Planning Act, and what that act does -- and I'll
2 talk about it a little bit more later -- it creates a 16-
3 county area -- metropolitan area as a planning district to
4 formulate water plans for that 16-county area. And in that
5 law it states that the district shall neither study nor
6 include in any plan any interbasin transfer of water from
7 outside the district area.

8 But outside the metropolitan area EPD is allowed
9 to grant permits for interbasin transfers of surface
10 waters, but the EPD Director must first try to allocate a
11 reasonable supply of surface waters to competing existing
12 uses and applications for permits which would not involve
13 interbasin transfers. If an interbasin transfer permit is
14 granted, the EPD Director has to issue a press release
15 seven days prior to the issuance and must hold a public
16 hearing, as well, if there is sufficient public interest.

17 DR. COUCH: May I comment on that?

18 MS. SULLIVAN: Sure.

19 DR. COUCH: So, for example, taking a pipeline
20 and sticking it in the Savannah River below Augusta and
21 running it to Gwinnett County is, in fact, prohibited by
22 state law. So some of the fears that folks have were
23 addressed by statute in this planning. And, you know, I
24 think it's one of the things that, as we learn more about

1 the perception, fears, and realities of interbasin
2 transfer, just wanted to highlight that.

3 SENATOR WALDREP: Having said that, is that an
4 order that prohibits that or is that a regulation that
5 prohibits that?

6 MS. SULLIVAN: It's a state law. It's a state
7 statute that prohibits the -- the Metropolitan North
8 Georgia.

9 SENATOR WALDREP: Well, frankly, on that note, I
10 must say that our feel and our information may indicate
11 that the changing demographics and needs of the state of
12 Georgia will trump that law in a moment.

13 DR. COUCH: Well, laws are always subject to
14 revision, as you would well know, Senator.

15 SENATOR WALDREP: Right.

16 DR. COUCH: But, you know, today, as we stand
17 before you, --

18 SENATOR WALDREP: Yeah, I know.

19 DR. COUCH: -- this is not something that is not
20 --

21 SENATOR WALDREP: Today.

22 DR. COUCH: -- regulated --

23 SENATOR WALDREP: Yeah, right. I mean, as of
24 this -- as of this moment, you know, I fully understand and
25 appreciate that. But that's -- you know, the information

1 that we got from some of the legislators in Georgia or the
2 ones that I have communicated with told me that, yeah,
3 that's for right now.

4 MS. SULLIVAN: Well, one thing in that, too, is
5 that that law was passed in 2001. It is not a very old
6 law, as most of these laws we're talking about are.

7 SENATOR WALDREP: Right. So I just -- I don't
8 take great comfort in the momentary, you know, law that's
9 on the books right now, but I just thought I would --

10 MR. TANNER: Let me just comment on that, if I
11 might. And I understand that laws can be changed. I can
12 tell you that that will be an extremely difficult law to
13 change. The vast majority of the members of the General
14 Assembly are vehemently opposed to interbasin transfer.

15 SENATOR WALDREP: Okay.

16 MR. BELL: How bout desal --

17 MR. TANNER: And I think it would be exceedingly
18 difficult to change that law.

19 SENATOR WALDREP: Well, I'm glad to hear that,
20 you know. We --

21 MR. TANNER: And I don't mind telling you that --
22 somebody can correct me if I'm wrong, but I think that law
23 was initiated by the General Assembly.

24 SENATOR WALDREP: Right.

1 MR. TANNER: I don't think that was initiated by
2 the Department.

3 DR. COUCH: That's correct.

4 MR. TANNER: And I can tell you that I believe
5 that it would be next to impossible to change it.

6 SENATOR WALDREP: Well, I'm glad to hear that. I
7 just didn't get that impression from the Georgia
8 legislators, you know, and they have --

9 MR. TANNER: It's according to who you talk to.
10 But in general terms, as a whole, -- for example, there is
11 a huge feud within Georgia that you take water released
12 which is downstream from Atlanta or over in another river
13 basin being pumped back to meet the needs of the Atlanta
14 metropolitan area. And when you look at the majority of
15 the General Assembly, the majority of the General Assembly
16 is made up of people who would be concerned about seeing
17 that kind of interbasin transfer occur. I don't think it
18 will happen in the foreseeable future, not within the next
19 10 years, 20 years.

20 SENATOR WALDREP: Okay.

21 MR. TANNER: I just don't believe it will happen.

22 SENATOR WALDREP: That's fine.

23 MR. BELL: I asked a question about desal. How
24 will -- will that be interbasin transfer from the coast?

1 DR. COUCH: Desal, the water -- the source of the
2 water was from salt, it wouldn't be considered part of a
3 river basin, and I don't think it would be subject to these
4 provisions.

5 MS. SULLIVAN: I believe that gets us to ground-
6 water. In 1972 the General Assembly passed a statute
7 dealing with ground-water called the Ground-water Use Act,
8 which requires a permit from EPD for withdrawals of greater
9 than 100,000 gallons of water per day.

10 Ground-water is also allocated using a statutory
11 scheme using the concept of reasonable use. An application
12 will be denied if it were to result in unreasonable adverse
13 effects on other water users.

14 Some of the criteria that EPD must evaluate in
15 considering the reasonableness of a permit or revocation or
16 a modification are laid out there on the twelfth page, and
17 I won't go through those.

18 There is a preference for nonconsumptive use in
19 the statute. Applications for water withdrawals that will
20 not be consumptively used are not subject to the same
21 permitting conditions as withdrawals that will be
22 consumptively used. Those types of conditions are that
23 might be imposed to a consumptive use but not for
24 nonconsumptive use would be permitted well depth, maximum

1 pumping rate, elevations of pumping, timing and spacing of
2 pumping, etc.

3 MR. MOSS: What would be an example of a ground-
4 water withdrawal that would not be consumptively used?

5 MS. SULLIVAN: nonconsumptive use is defined in
6 the statute as a use that does not -- the water is
7 returned; it does not substantially alter the quality or
8 the quantity of the water.

9 MR. BOARDMAN: Like one-pass cooling water or
10 something like that?

11 MS. SULLIVAN: I guess that would be an example.

12 MR. MOSS: But irrigation would be a consumptive
13 use.

14 MS. SULLIVAN: Irrigation is a consumptive use.

15 MR. MOSS: People drinking it would be a
16 consumptive use, domestic water supply, potable water
17 supply, municipal water supply.

18 MS. SULLIVAN: I think most uses are probably
19 consumptive uses.

20 DR. COUCH: Well, across that range there is a
21 variation in consumptive -- the consumptive --

22 MR. MOSS: Right.

23 DR. COUCH: -- nature of the use. For our
24 purposes in our planning, it's interesting even the -- is a
25 farm use of water considered 100-percent consumptive? For

1 our purposes in planning and allocating water, we do
2 consider it that way. In reality, there is some fraction
3 that does make its way through long periods of time back
4 into the resource, but it's not such that as a timely way
5 can be reused. So for all intents and purposes -- and that
6 particular point has been one of a high degree of debate
7 among farmers in the state. So that's the reason I spend a
8 bit of time on it.

9 MS. SULLIVAN: Again, farm use is treated
10 differently for ground-water. For non-farm use the permit
11 conditions are very similar to surface water. Terms are
12 from 10 to 50 years. There are specific reporting
13 requirements in the statute for the Ground-water Use Act.
14 Every permit holder must file with EPD a certified
15 statement of the quantities of water used or withdrawn, the
16 sources of water, and the nature of the use, at least
17 semiannually.

18 The EPD Director also has broad authority to
19 revoke or modify a non-farm-use ground-water permit. And
20 ground-water permits cannot be transferred without the
21 approval of the Director of EPD.

22 Also, under the Ground-water Act EPD is given the
23 authority to develop a regional water development and
24 conservation plan. And once such a regional plan is

1 developed, all the permits have to be consistent with that
2 plan.

3 Farm-use permits are very similar to the surface-
4 water permits. So I will not go through each of those
5 terms, but they are there if you want to look at them.

6 Georgia also has a Water Quality Control Act that
7 was first enacted in 1964. It just declares that the -- it
8 declares the public policy of the state to be that the
9 water resources of the state shall be utilized prudently
10 for the maximum benefit of the people; in order to restore
11 and maintain a reasonable degree of purity in the waters of
12 the state and adequate supply of such waters; and to
13 acquire, where necessary, reasonable usage of the waters of
14 the state and reasonable treatment of sewage, industrial
15 waste, and other waste prior to their discharge into such
16 waters.

17 Pursuant to this act the government assumes
18 responsibility for quality and quantity of water resources
19 and the establishment and maintenance of water quality and
20 quantity control programs for the present needs and
21 designed to care for the future needs of the state.

22 EPD has very -- well, DNR has very broad rule-
23 making authority pursuant to the Water Quality Control Act,
24 and they are set forth on slides 19 and 20 there for your
25 perusal, some very broad authority.

1 That gets us to the Comprehensive Statewide
2 Management Planning Act. What Carol was talking about a
3 little earlier today is actually required by statute.
4 Passed in 2004, the Comprehensive Statewide Water
5 Management Planning Act requires EPD to develop and propose
6 a comprehensive statewide water management plan, and the
7 statute sets forth a policy statement there that the plan
8 must be consistent with. The proposed plan is required to
9 set forth statewide water policies to guide river basin and
10 aquifer management plans, regional water planning efforts,
11 and local water plans. The Act itself does not change any
12 water law or policies, but those changes to proposed water
13 laws are policies are supposed to be considered in the
14 planning process itself.

15 The Act creates a Water Council, which Carol
16 serves as Chair of, I believe.

17 DR. COUCH: Uh-huh (affirmative).

18 MS. SULLIVAN: And it consists of various
19 legislative members and appointments and heads of State
20 departments with water-related responsibilities. And the
21 Water Council itself is responsible for providing input
22 into the planning process, coordinating input from various
23 State departments, and ultimately approving the version of
24 the plan that will be submitted to the Legislature for
25 approval.

1 EPD is going to present a draft plan to the Water
2 Council by July 1st, '07. They are required to by statute.
3 And the Water Council's plan will then be presented to the
4 General Assembly for approval during their 2008 Legislative
5 Session.

6 DR. COUCH: I might add to that I think this is a
7 notable piece because of the State's Water Council three of
8 us here are members of that, Gus Bell, myself, as well as
9 Commissioner Holcomb. So we have the opportunity, as we
10 are progressing with the development of state policy, for a
11 significant fraction of the Water Council to also be
12 involved with this activity and to help see if there is a
13 way that we are, you know, facilitating, joining or
14 conflicting in the development of where this process is
15 going. So we've got that tie-in here.

16 MS. HAGOOD: Is the Water Council appointed by
17 the Governor, the Legislature?

18 MS. SULLIVAN: There are some Governor's
19 appointments, --

20 MS. HAGOOD: It's mixed?

21 MS. SULLIVAN: -- some -- it is mixed.

22 DR. COUCH: The membership composition is defined
23 by statute. It includes eight agency heads. It includes
24 four members of the State General Assembly. And it
25 includes two citizen appointees, of which Mr. Bell here is

1 one, as well as Jerry Lane, who is from the Statesboro,
2 Georgia area.

3 MS. SULLIVAN: The water plan that is presented
4 to the Legislature will go into effect. There are four
5 possible ways. One, the General Assembly proposes the plan
6 approved by the Water Council. If they reject the first
7 plan, the Water Council can submit alternative plans
8 through the twentieth day of the Legislative Session, which
9 is halfway through our Legislative Session. The General
10 Assembly can enact its own version of the plan. Or, if no
11 plan is approved or enacted by the Legislature, then the
12 plan presented to the General Assembly by the Water Council
13 will automatically take effect.

14 MR. McSHANE: I wish we had a 40-day Legislative
15 Session.

16 MS. SULLIVAN: It generally takes about four
17 months, but --

18 DR. COUCH: Four months to do 40 days.

19 MS. SULLIVAN: Four months to do 40 days.

20 This Statewide Water Management Planning Act was
21 -- I wasn't really involved in this, but I think it was
22 passed pursuant -- started by a Legislative Study
23 Committee, I think, that was created in 2001, --

24 DR. COUCH: Uh-huh (affirmative).

1 MS. SULLIVAN: -- and then Governor Perdue
2 appointed a Water Council in 2003 to help make
3 recommendations, and then this Act was passed during the
4 2004 Legislative Session. It was a big accomplishment.

5 Just a couple of regional water laws. One I've
6 already mentioned is the Metropolitan North Georgia Water
7 Planning District Act.

8 I think the Flint River Drought Protection Act is
9 an interesting act. It was created in response to the
10 1999-2000 drought based on concerns about the effect of
11 increased pumping on the surface water in drought periods.
12 But what the Flint River Drought Protection Act does is it
13 allows EPD to provide financial incentives to farmers to
14 temporarily take acres out of irrigation in the lower Flint
15 River basin during times of declared drought. And the Act
16 and regulation develop a voluntary option process by which
17 the farmers who have permit to use surface water to
18 irrigate will be paid not to irrigate land during an entire
19 calendar year after the option.

20 We only had two of these to date -- two options
21 to date, one in 2001 and 2002. If EPD does not get the
22 reductions that they think are necessary to protect the
23 surface water on a voluntary basis, they do have the right
24 to make reductions on a nonvoluntary basis.

1 And then the last thing that I have there is the
2 Metropolitan North Georgia Water Planning District Act, and
3 it explains a little bit more about the planning entity
4 that is developing a water plan for the 16-county metro
5 North Georgia area.

6 I think I have probably covered enough water
7 statutes for now. But I think you will see that Georgia
8 has a fairly comprehensive statutory water regulatory
9 system that, you know, resulted in a fairly coordinated
10 approach to management of water, particularly during
11 periods of drought, and I think we will see some good
12 recommendations for changes in the water-planning process.

13 DR. COUCH: Any questions?

14 MS. SULLIVAN: Sorry. It's harder to be brief
15 than it is to be long.

16 DR. COUCH: Well, I think our intent with these
17 briefings was just to provide some basic information and
18 understanding. And I do appreciate Rebecca and the
19 Professor putting that together for us.

20 SENATOR WALDREP: In the overall philosophy of
21 all that we have been talking about, I glean out of all
22 that that we are still talking about an equitable use of
23 water and that nothing done by either side has done
24 anything to reflect that concept. Is that --

1 DR. COUCH: I'm not sure I'm following your
2 question.

3 SENATOR WALDREP: Well, the equitable -- I guess
4 just the equitable use of the river, the use of the water.
5 And I'm just making that as a general statement and asking
6 if I'm correct or incorrect on that concept that, you know,
7 throughout everything that we have talked about, just in
8 generalities, are we, in effect, confirming the fact that
9 we are kind of equal partners, that there is no majority
10 stockholder that's --

11 DR. COUCH: Well, I guess the way I would comment
12 on your statement is this. Embedded, as you might see,
13 within Georgia's own statutes applicable within its
14 sovereign boundary is the notion of reasonable use,
15 fairness, equity, and allocation.

16 SENATOR WALDREP: Right.

17 DR. COUCH: And I personally, from a personal
18 point of view, believe that the statement that we are
19 developing as the goal and objective of our state water
20 planning effort may speak for itself in terms of waters
21 that we, in fact, share with other states, because you can
22 execute -- where is that? Let me just read it to you. You
23 can execute this goal and put a blinder on to interstate
24 waters. And that -- where is it? Yeah.

1 Georgia manages water in a sustainable manner
2 that supports the state's economy, protecting health,
3 natural systems, enhances the quality of life for all
4 citizens.

5 There is -- I think this is perhaps one -- there
6 may be one other place, but this is the first place in
7 Georgia's statute where the word "sustainable" is used.
8 So --

9 MS. TAYLOR: Rebecca, I have one question for
10 you. What is the legal status of the Coastal Georgia
11 Ground-water Permitting Plan? Is that a regulation or is
12 it a guidance document?

13 MS. SULLIVAN: The Coastal Water Plan is enacted
14 pursuant to the -- it is, actually, I don't think even
15 adopted officially, but it is a plan that EPD is allowed to
16 develop through -- specifically through the Ground-water
17 Management Act. And they have similar ability to develop
18 these type of regional plans through the surface water --
19 for surface waters. But it's specific authority given to
20 EPD to develop these types of regional plans.

21 DR. COUCH: And use them to guide the decisions
22 on permitting.

23 MS. TAYLOR: So it's a guidance document?

24 MS. SULLIVAN: Yes.

25 DR. COUCH: I think it's time for a break.

1 (Recess from 1:51 p.m. to 2:04 p.m.)

2 DR. COUCH: Okay. If I could ask everybody to
3 take their seats and let's reconvene and we'll give Dean
4 the floor.

5 All right. I'll turn this over to Dean.

6 MR. MOSS: What I have done is -- what I am going
7 to give you is some thoughts about the Savannah River. And
8 I stress that these are thoughts. These are my opinions,
9 my thoughts. They do not in any way represent the official
10 perspective of the South Carolina team or even the
11 Beaufort-Jasper Water & Sewer Authority.

12 But I have been remembering that one of the
13 things that were created when -- when I served on the Water
14 Law Review Committee it was, in fact, the experience that
15 we had had in the drought of 2002 that led the Water Law
16 Review Committee to look at the importance of a
17 conversation with Georgia on management of the Savannah
18 River. And it was the experience on the river that really
19 drove this.

20 Only after we created and really started
21 organizing ourselves did it become truly apparent to us
22 that the issue of ground-water and the issue of TMDL were
23 kind of being forced upon us as a media and critical issues
24 that would have to be developed. But in a number of our

1 other meetings Carol has pointed out that we really needed
2 to start focusing on the river itself.

3 And so what I am giving you here is just a series
4 of thoughts that I have come up with as to what is
5 important and then kind of a concept of what we can use to
6 think about how we might address the issues in the river.

7 First, we have met a series of challenges that we
8 have to deal with in the basin. And I think what I have
9 said is it's a finite amount of water chased by an apparent
10 infinite demand. I don't know what's going to happen in
11 South Carolina and Georgia over the next 50 years, but I
12 can guarantee you that a lot of people are going to move
13 here and a bunch of them are going to want to live in the
14 Savannah River Basin and in areas which are dependent today
15 on water from the Savannah River Basin. So we are going to
16 have more demand on that resource than we have water to
17 supply, and we had better start figuring out what we are
18 going to do about it.

19 We have an extremely complex hydrologic system
20 with a series of lakes all the way down the basin. We have
21 free-flowing streams. We have trout fisheries. We have a
22 complex situation down here environmentally and
23 hydrologically with respect to the way that the river hits
24 the saltwater environment and all the things that happen
25 there. We have -- "complex" doesn't even begin to describe

1 the institutional situation that we have with two states,
2 Corps of Engineers, Duke Power, Georgia Power, South
3 Carolina Electric and Gas, Department of Energy, etc.,
4 etc., etc., multiple municipalities, counties, and other
5 interests all the way up and down the basin that have a
6 very very direct and immediate interest on what happens in
7 that basin.

8 We have a situation which is probably not
9 completely unique in the United States, but it's very rare,
10 in which this river essentially divides the states of South
11 Carolina and Georgia its entire length. And so, as I said
12 before, the opportunity exists for dispute for anywhere
13 along that 300-mile stretch, whether it's between the
14 states or between folks that live on either side of the
15 river from one thing or another. So we have a very
16 complicated problem we have to solve there.

17 We have existing demands for water and power that
18 originate outside the basin boundaries, and those demands
19 are large, and the expectation is they will continue to
20 grow. We have conflicts in uses today. If you talk to the
21 folks that live on Lake Hartwell, their enjoyment of the
22 lake, from their perspective, amounts to being able to have
23 their boats and their docks and can enjoy being on the
24 lake. The use of the lakes for power generation in times
25 of drought and low water means that their uses can't be

1 satisfied because we drop the level of those lakes down and
2 their docks are sitting on sand.

3 And, finally, we have very important natural
4 resources and ecosystems in the basin that must be
5 protected, whether it's the Savannah Wildlife Refuge,
6 whether it is a coastal fishery, whether it is trout
7 streams, whether it's the fishable, swimmable situation in
8 the harbor itself.

9 So this is the basin. We have seen it. It goes
10 all the way up into North Carolina. We don't have North
11 Carolina in the room, but I'm sure they would agree with
12 all those points. They have no real reservoir storage.
13 And nothing, I think, that would be proposed by either
14 South Carolina or Georgia with respect to the river would
15 impact the way that their part of the basin was used or
16 enjoyed. But you can see it's a narrow basin and,
17 effectively, it splits almost 50-50 between the two states.
18 That's probably one key point from that map.

19 What are some concepts? And this is -- I have
20 talked to Nap and to Carol, and this is very similar, I
21 think, to their concept that they are working -- concepts
22 that they are working on in their plan. But the river has
23 a finite ability under normal conditions to lose water.
24 When I say "lose water" what I mean is essentially to

1 support a consumptive use of water. It leaves the basin or
2 it leaves the river itself and it doesn't come back.

3 Whether it is used to grow crops, whether it is
4 used to make Coca-Cola that is shipped out of the basin,
5 whether it ends up in a septic tank on the hillside, or
6 whether it is pumped out of the basin in a pipeline to
7 serve someone outside the basin, those are all losses in
8 the system and the water doesn't come back into the river
9 or, if it does, it's a very very long process, just as
10 Carol has just explained. But there is a finite ability
11 under normal conditions for that to happen. Under drought
12 conditions that ability goes down in some cases probably
13 dramatically, but we will start with normal conditions.

14 That ability varies by segment. And when I say
15 "segment" if we go back to the map we would see we have a
16 series of linked lakes and we have areas below those lakes
17 which break up into some logical sections. And each
18 segment in the basin really has two responsibilities in
19 that segment. The water -- has to be enough water in that
20 segment to support what is happening in that segment
21 itself. And then there has to be enough additional water
22 to move out of that segment and support the next segment
23 downstream, and so on and so on and so on.

24 So it's a cascading system. All rivers work this
25 way, but we are especially like that because we just have a

1 series of linked reservoirs all the way from Jocassee, in
2 fact, all the way from Lake Burton in North Georgia, all
3 the way down through the system, and that each of those
4 segments has to support things and each of those segments
5 has a different ability to have water taken out of it and
6 taken away.

7 It also varies by season. This time of year that
8 ability is much more limited than it is in March, for
9 example, or April, when we have got a lot of water flowing
10 into the system and we're running water out. And then
11 obviously it changes by drought status.

12 Another principle, and this kind of a fundamental
13 principle of the approach, is that each state, essentially,
14 what we need to be able to do is to allocate that water
15 that can leave the basin to the states. Now, how we do
16 that is subject to some discussion here. But once that
17 allocation takes place, each state ought to have the right
18 to do what it wants with that water without another state -
19 - the other state being concerned about it as long as we
20 are inside the boundaries of what is considered and agreed
21 to be allowable.

22 And I refer to that concept in there as what I
23 call allowable net withdrawal. And I think, Nap, you guys
24 are calling it --

25 MR. CALDWELL: Consumptive use budget.

1 MR. MOSS: Consumptive use budget. I think these
2 are probably very similar ideas.

3 So what I essentially have is a process or a
4 series of steps that would need to be followed in order to
5 get us working on this problem. We have got to quantify
6 the needs of the natural systems. And, in my notion, the
7 natural systems are paramount. We have to be able to
8 protect, regardless of what happens, the natural systems
9 that are critical in the basin, and that has to be done
10 first.

11 Otherwise, we will end up in a situation like
12 Georgia experienced with Florida where endangered species
13 at the base of the river, at the mouth of the river, in the
14 bays, needed water. And, lo and behold, a federal judge
15 stepped up and made the decision that those species had to
16 be served, ordered the Corps to release water from the dam.
17 We need to know about those kinds of things up front. We
18 need to account for those kinds of things up front before
19 we start worrying about how we use water elsewhere in the
20 system.

21 We need to define what we are going to use as a
22 critical-flow characteristic. I am recommending that we
23 take something like 85 percent of the total -- of the
24 annual flow regime of the river as a basis for allocating,
25 not 100 percent, save some water in the system.

1 Then we have to define the amount of allowable
2 net withdrawal basically by segment in the system. We have
3 to allocate that allowable net withdrawal between the
4 states. We have to develop what I will call an equitable
5 drought protocol in the relicensing on the Catawba. It was
6 called the low-flow protocol, and it was a negotiated
7 process by which in times of drought or low-flow it was
8 very clear who was going to do what, what cutbacks were
9 going to be done, what kind of rules were going to come
10 into effect in those conditions.

11 We have to then have a regulatory program in
12 place to implement this. Georgia has one. Effectively,
13 South Carolina right now does not, except for interbasin
14 transfers. But we do not have in South Carolina a
15 permitting program for the withdrawal of surface water for
16 use inside the basin from where it originates. And we have
17 to do all that in the context of the current usage patterns
18 we have out there.

19 The current regulatory system, the Corps, and the
20 uses and the reservoirs and the property owners and
21 everything else that happens out there, we have to do all
22 those things in that context. Whatever we do in this
23 basin, we have to do it in the context of all the players
24 that are already in place and all the rules that already
25 exist for the way things work.

1 There are some kind of what I call associated and
2 supplemental concepts. And I have explained the concept of
3 linked reservoirs. One assumption here is we can describe
4 this reservoir and we can -- this system and we can model
5 it. I think both states have worked with the Corps and
6 have developed a river model, hydrologic model for the
7 river that we can use to do a lot of this stuff. We know
8 what happens when we reduce flows theoretically from Lake
9 Hartwell, what the impact of that is on the levels in
10 Russell, in Thurmond, and ultimately downstream.

11 Again, the needs of the natural systems are
12 paramount in the system. We want to manage net
13 withdrawals. That's what we want to manage. We want to
14 find out and manage net withdrawals, which means accounting
15 for water going out and water coming back, and making
16 decisions upon how those two things are related.

17 And, again, principal water supply of the river
18 is limited. And I said total net withdrawals should be
19 based on 85 percent of the average flow. That's just my
20 number. It just means we can argue about it. The low-flow
21 protocol is required.

22 It is an enormously complex institutional
23 ecosystem and it's not just a series of rules and
24 regulations; it is an institutional ecosystem. All of the
25 pieces are related to every other piece. If you poke at

1 one thing institutionally, you're going to respond
2 someplace else.

3 But we don't have a choice. We have to develop a
4 system to reconcile current and future competing interests
5 because if we don't do that, we are going to -- we are
6 going to find ourselves constantly in dispute over how that
7 river ought to be used not only between ourselves, Georgia
8 and South Carolina, but with the Corps, with the big power
9 companies, everybody else involved in the system. It's
10 time-consuming, it's difficult and expensive, but we've got
11 to do it.

12 I propose an approach and it's basically what I
13 have said is we analyze the amount and quantity of water,
14 amount and quality of water to meet the natural system
15 needs, and we do it from the ocean back upstream. So every
16 segment we look at what we need there and we figure out how
17 much water has got to come into that segment from upstream.

18 We describe the current man-induced needs in each
19 segment, including water supply, wastewater assimilation,
20 power generation, navigation, lake-level maintenance,
21 recreation, anything in the system that where we have a
22 lake we have a man-induced need or demand on the basin.

23 We project the future man-induced needs by
24 segment. We are going to have to project the future. And
25 then we do a downstream analysis. We go downstream

1 basically looking at the amount of water that can be
2 released as we go downstream both on the natural systems
3 without man-induced needs and then with man-induced needs.
4 And effectively there are no givens in this process.
5 Everything is on the table, at least from a planning
6 perspective.

7 We are going to recognize that the Corps of
8 Engineers owns the reservoirs. We are going to recognize
9 that they have SEPA contracts. We are going to recognize
10 that there are requirements. But at least from an analytic
11 standpoint we ought to understand what those mean with
12 respect to the long-term ability to use the river. And
13 this then gets us to the point of saying if we need to use
14 this river as a water supply for coastal Georgia, we need
15 to understand what that means; we need to understand how
16 much water that means we have to be able to release
17 downstream in order to do that under all conditions.

18 We use the model. We run a series of iterations.
19 And we try to optimize downstream releases, withdrawals,
20 return flows to try and balance out these segments as we go
21 downstream. We have to then define what those allowable
22 net withdrawals are by segment and then we allocate those
23 essentially, I say, before the human demands so that each
24 state comes out with an amount of water that it can use.

1 Now, I am prepared to say that it may end up that
2 the amount of water that South Carolina is currently taking
3 out of the basin -- and there is a good bit of it;
4 Greenville and Beaufort-Jasper are both removing water from
5 the basin -- we may find out that we don't have any more to
6 take out. You know, I don't know. I don't know what the
7 numbers are. But I think that that is part of what we have
8 to do. We can't simply accept that fact. We have got to
9 be prepared to look and say how much water can we really
10 take away from this basin and what does that leave us with.

11 And if South Carolina says we have got to figure
12 out a way to get water back into the basin, then that's
13 something we have to do. It's being done. It's being done
14 in Atlanta. It's being done in Raleigh. Wastewater
15 discharges are being brought back into the basin from where
16 they have been taken out.

17 And, again, the states decide where their water
18 is used. If they want to send it away on an interbasin
19 transfer, they can do that. That's an issue for the state,
20 not for an interstate dispute. I'm trying to get to the
21 point of where Georgia can do what it wants and we can do
22 what we want in South Carolina without prompting lawsuits
23 between the states over these issues.

24 It's going to be probable, based upon at least
25 our experience so far, that the reservoir owners are going

1 to want to get paid if water is taken out or if water is
2 stored. I can envision a situation from Beaufort-Jasper
3 where we would want to keep water in storage in Thurmond so
4 that we had it available during drought times. And the
5 Corps would have to hold that water for us, wouldn't be
6 able to release it to make power. They would want to be
7 compensated for that. So we have to basically come up with
8 a business deal that allows us to manage these resources.

9 Now, I made this recommendation -- put this down
10 before I made the recommendation before lunch. So this is
11 something that may end up, but the main was if we're going
12 to move on this we need to kind of start a process, and I
13 used the notion of two people from the Committees. Each
14 Committee would kind of work around the basin and hold some
15 conversations with folks and just kind of talk this out
16 with people, find out what's important, find out what folks
17 in the basin thought ought to happen.

18 At the same time, we assign back to the staff to
19 work together to put together a work plan of some
20 description to start moving us along in some direction.
21 And, finally, we take senior folks and sit down with the
22 Corps, because the Corps essentially is the key to this and
23 it has to be met with, discussed with, and we have to
24 understand.

1 The Corps has done a lot of things. There's a
2 lot of data. There's a lot of studies. There's a lot of
3 planning that has been done, but the Corps runs out of
4 money. It doesn't have any money to do anything else. So
5 we are dead stopped now on the Savannah River study because
6 the federal government can't find the funds to continue it.
7 I think the states could find the funds if we were matching
8 them, but there is no federal money there to match. So we
9 have got to come to some agreement with the Corps of
10 Engineers about how this process is going to move forward
11 on the river.

12 And then we put together a little paper, a single
13 report of those groups, that comes back to this Committee,
14 and we then kind of push and decide a path forward. And
15 that would include, I think, ultimately going to the
16 Governors and going to the Legislature for some money to do
17 this work.

18 Now, how that differs from Georgia's active
19 planning effort in the basin, how we can integrate things
20 together, how South Carolina needs to be involved in
21 Georgia's, Georgia needs to be involved in South Carolina's
22 activities, but it's going to fall under the -- essentially
23 the -- I don't want to say control but at least under the
24 oversight of the perspective of this Committee. I think we
25 need to be thinking as a group about what happens in the

1 basin and not try simply to do it one side one way and
2 another side the other way.

3 So that's my thoughts. Again, it's not official
4 in any way, shape, or form. And I appreciate everybody's
5 attention for 15 or 20 minutes.

6 Thank you, Carol.

7 DR. COUCH: Dean, do you want to remain up there
8 or do you want to join us here and discuss?

9 MR. MOSS: I'll come sit down.

10 DR. COUCH: Yeah.

11 SENATOR WALDREP: Dean, a couple of things as you
12 were going through this. It seems to me like if we are
13 going to be measuring things, quantifying, qualifying, that
14 South Carolina is going to be imposed with some kind of
15 licensure; is that correct? We've got to go through a
16 licensing?

17 MR. MOSS: We are in the process right now of the
18 Study Committee looking at a proposed piece of legislation
19 that DHEC has drafted concerning the permitting of surface
20 water withdrawals in the state right now.

21 SENATOR WALDREP: Okay.

22 MR. McSHANE: We actually had some legislation
23 proposed by a legislator out of the -- York County.

24 MR. MOSS: Right, and that's the bill that's --

1 MR. McSHANE: And that bill is sort of going to
2 become the -- will be a new session; so it will have to be
3 reintroduced, and we want to have some commenting and some
4 integration into that both through DHEC and DNR.

5 MR. MOSS: Well, I think we'll use the Georgia
6 bill as a starting point on that.

7 SENATOR WALDREP: Well, I'm just kind of being
8 kind of open, I guess, on that particular issue about what
9 we -- you know, we have to do as a practical matter. And I
10 think we have trouble talking to other states who do have
11 these processes, you know, and when we don't that gets us
12 -- that puts us at a real disadvantage.

13 But the other comment I was going to say is that,
14 you know, thinking about what you've been thinking about,
15 this concept of us having these point people where, as I
16 understand, we would have someone on the Committee -- each
17 Committee having someone who really knows something, too,
18 that would have a staff person that you would have, and
19 these four people working together in this manner, it seems
20 like it would really cut down on a lot of miscommunication
21 that would be going on, that you would have people that
22 could really get to the bottom of things and be able to
23 share that and would cut down on a lot of meetings, I would
24 think, if that's one of the thrusts of your proposal.

1 MR. MOSS: Well, you know, in dealing with, you
2 know, fairly intricate subjects a small group of people
3 that are knowledgeable, they can move more quickly at least
4 to pull together something preliminary for the sake of
5 discussion than we can as a whole group trying to create
6 something on a whole -- so that was the notion, that you've
7 got to start with something. And the idea was how do we do
8 that, how do we get this Committee kind of involved in it
9 and take advantage of the fact that the staffs have been
10 working on this at the same time.

11 And that was kind of the notion of having both
12 Committee members and staff members doing different things
13 but getting together at the end and creating one report
14 that would be the basis for discussion.

15 MR. SPITZ: Senator and Carol, on an utterly
16 mundane and ridiculous level, Joe Tanner and I at lunch
17 shared a cookie. I just thought I'd tell you we can work
18 together. It's true. Ask him.

19 MR. TANNER: But he got the biggest piece of the
20 cookie. I think we're going to have to appeal that.

21 MS. HAGOOD: But how many chips did he have in
22 his cookie?

23 MR. TANNER: If I could, Dean, let me give you a
24 little bit of reaction. And I'm coming at that from seven
25 years of my life that were devoted outside the state of

1 Georgia. I think you obviously have put a great deal of
2 thought into that presentation. I think it was very well
3 done.

4 There are two things that I would say that I
5 think probably some additional thought needs to be given
6 to. One of them is timing. I don't see how anybody could
7 be ready to come back with a recommendation about how to
8 implement that process in January of '07. I think that
9 time frame is way too tight.

10 The second thing is, you know, just sitting back
11 and looking at that, that looks like a three-year study to
12 me, and it's not going to be inexpensive, you know, and
13 somebody's going to have to figure out how you're going to
14 pay for it.

15 And the other thing is it's not going to be done
16 in a short-term period of time. That's going to take quite
17 some time if it's done correctly and thoroughly.

18 If I'm not incorrect, Carol, I think it was about
19 three years to just do the study part that was somewhat
20 similar to that over on the other side of the state.

21 Now, let me say one other thing. There is a
22 distinct advantage, I think, between Georgia and South
23 Carolina on the Savannah system compared to the complex
24 system over in these other states. One of the distinct
25 advantages are -- and y'all correct me; I think I'm

1 geographically correct -- but the major reservoirs are in
2 both states. And so it's not like, I mean, if you're
3 sitting down in Florida what do you care if there's any
4 water in Lanier or not, you know, except when you need
5 water. So you don't care -- you don't worry about the
6 shoreline or whether it's, you know, dropped 30 feet or 10
7 feet or 100 feet.

8 In this case the two states above them get
9 pressure from homeowners and people who use them as
10 resources probably about equally because we both use it.
11 And so from that standpoint we are more in concert when we
12 start talking about issues because we not only share in the
13 resource and the whole length of the system but the
14 reservoirs on that resource, as well.

15 But my biggest statement, I think, would be, one,
16 I think it's going to take more time to come to grips with
17 even a committee to come back with recommendations.

18 MR. MOSS: And I don't deny that.

19 MR. TANNER: And it is going to cost some money.

20 MR. MOSS: I guess my --

21 MR. TANNER: Not an insignificant amount of
22 money.

23 MR. MOSS: No, I know that.

24 MR. TANNER: And it is going to take several
25 years to do what you propose.

1 MR. MOSS: I agree.

2 MR. TANNER: But that doesn't mean we ought not
3 to do it.

4 MR. MOSS: And that's just kind of -- again, this
5 was just to -- this was just to kind of get some ideas on
6 the table.

7 One thing that I have observed and I think, in my
8 experience, number one, the interests of at least folks who
9 live in the basin on either side of the river are pretty
10 much the same. I mean, their interests in that -- their
11 interests in that basin, in the resources, are very
12 similar. There is not a huge conflict, at least within the
13 folks who live in the basin, between the two sides.

14 And, secondly, -- and this is a little bit
15 counterintuitive, but I think it's true -- the interests of
16 the upper-basin folks and the interests of the lower-basin
17 folks -- and I'll say lower-basin blow Thurmond -- are also
18 pretty similar. In other words, as a water provider down
19 here, I want as much water held in storage in those
20 reservoirs as we possibly can get because if it's in those
21 reservoirs it's there and can be used ultimately in the
22 time of drought. And the folks in the upper basin, I
23 think, want as much water held in those reservoirs as
24 possible, for recreation particularly, and residential
25 property values.

1 So, I mean, I think there's a lot of common
2 interests in the basin that we share and that by no means
3 make this an easy process, but we don't have to overcome a
4 lot of at least resistance from the local folks on how we
5 work things out here. Now, the Corps, Duke, SEPA, all
6 those folks, another matter entirely. But in terms of the
7 folks that live in the basin, this is something I think
8 that --

9 MR. STALWORTH: Ms. Chairman, can I add
10 something, if I may? I'm not on the Committee; so I don't
11 know if it's appropriate for me to say it or not.

12 But, Joe, if I look back to what Georgia and
13 South Carolina and the Corps have done for the last five
14 years, they have answered a lot of those questions. Now,
15 they might not have answered to this committee's
16 satisfaction or that committee's satisfaction, but they
17 have addressed those issues. They have addressed
18 stakeholders. They have addressed natural system needs.
19 I'm not saying that more doesn't have to be done.

20 EPA -- I was asking Alton -- I don't know how
21 many years EPA led that study of Savannah River Basin with
22 stakeholder meetings one after another, but it was at least
23 four years that they led that study, and that preceded the
24 Corps' study.

1 And I think, you know, one of the advantages that
2 y'all have is you are a relatively small group, but you
3 also have the advantage of all the work that has been done,
4 and there has been a considerable amount of work done and a
5 whole lot of money already spent to do a lot of what Dean
6 was addressing that needs to be identified by a smaller
7 group of people to bring back to y'all to say what do we
8 still need to do, how much more planning do we have, what
9 is it going to cost to get the Corps to do the final
10 tweaking on that study to where we can do the what-if game
11 and play those -- run through those sorts of issues.

12 So I don't think, in fairness to Dean, that what
13 he was saying is that we need to do those five-year studies
14 all over again, because we've had two major efforts at that
15 already --

16 MR. TANNER: Was that done on the entire basin or
17 just on the --

18 MR. STALWORTH: Entire basin.

19 MR. TANNER: Entire basin.

20 MR. BOARDMAN: That's my sentiments, too, that we
21 necessarily don't need to recreate the wheel, that there is
22 a lot of data, and a lot of the things that Dean addressed.
23 Some studies need tweaking, but we have invested on both
24 sides of the river so much money and on the federal level

1 in studies, that there is a wealth of knowledge out there
2 for us to go out and gather and talk about.

3 And I think, to the benefit of that, that speeds
4 the process that you're talking about a lot and, I think,
5 helps with the money situation. Granted, there are many
6 more questions to be answered, but a lot of them have been
7 addressed.

8 MR. BELL: And it seems like to me it could be
9 broken down into -- I mean, we're talking about TMDLs,
10 we're talking about withdrawal from the aquifer, we're
11 talking about withdrawal from the river, we're talking
12 about discharge at the river, we're talking about reuse. I
13 mean, there's some things that could -- we could come to
14 closure on while it takes longer to do other things.

15 MS. CAROL: One thing that might be helpful to
16 talk about a little bit is -- and I agree there is the
17 investment that the Savannah River Basin study that the
18 Corps and the two states have invested in and it's kind of,
19 I guess, moth-balled relative to funding. We don't want to
20 reinvent and recreate wheels -- reinvent the wheel there.
21 And so it is a good solid building block to update, renew,
22 refresh. So there is an investment that can be capitalized
23 there already. And so we're not starting from scratch, per
24 se.

1 My comments are related to the essence of this
2 well-thought-through concept. What you have laid out, I
3 believe, is a real logical approach. It has an
4 identification and general sense of the complexity, the
5 process, and all these sorts of things. And there is a
6 high degree of resonance with some of the concepts in here
7 and what we are doing in our own development of the state
8 planning process that we were talking about in one-on-one
9 earlier.

10 And while embedded in here is the need to
11 analyze, assess, and make potentially ultimately decisions
12 on multiple facets of resource issues related to the
13 Savannah River and the aquifer supporting this area, you
14 are, in essence, I guess in the way I'm thinking about it,
15 talking about a compact. And I'm not saying that's good or
16 bad.

17 MR. MOSS: Right. Well, I mean, I think
18 ultimately --

19 DR. COUCH: Yeah. I mean, the word is not used
20 here, but when I look at this relative to the nature of the
21 work plan that was put forward for the ACF and ACT, while
22 it is actually, quite frankly, in my view, a little bit
23 more sophisticated view here than was evident 15 years ago
24 when some other groups of people were thinking about it on
25 that side of the world, when you start talking about

1 allowable net withdrawals you are doing it in a context of
2 making decisions on equitable apportionment and equitable
3 allocation. And so that's where I start thinking about
4 this in terms of a compact.

5 And I guess what I would like to suggest is I
6 think this is a lot of food for thought for us today, but I
7 would expect that as we are thinking about this from
8 Governor Perdue's direction to this team, he has been very
9 clear that our role is not in negotiating a compact. So if
10 one of the outcomes of our process together is identifying
11 an agenda and a process for specific things, like we are
12 starting to do on TMDLs and on the ground-water piece,
13 that's great and that's forward progress on some near-term
14 resource issues.

15 But I think it's outside of the scope of our
16 charge from our Governor to be utilizing the Georgia team
17 in a way as if we had the -- we were in a position or
18 authorized to think about this in terms of a compact
19 negotiation.

20 Now, we might want to think about that some and
21 decide that that's exactly what we want to recommend to our
22 governors, but it's -- it wasn't, I think, in our immediate
23 vision. So just a reaction here. I don't know what --

24 MR. McSHANE: We actually had that discussion --

25 DR. COUCH: Yeah.

1 MR. McSHANE: -- in our very first meeting,
2 Carol, --

3 DR. COUCH: Yeah, we did.

4 MR. McSHANE: -- that we identified that that --
5 there may be --

6 DR. COUCH: In terms of scoping and why are we
7 here and what our charges are.

8 MR. McSHANE: And there may be elements that
9 people have an interest in that, but that's not necessarily
10 how I looked at it. I didn't interpret his context to go
11 as formal as that. That may end up being some creature
12 that we look at as a recommendation at some point or maybe
13 not. But we have been sensitive to that from the very
14 beginning.

15 SENATOR WALDREP: We spent a lot of time, I
16 think, talking about that from the beginning. We talked
17 about getting to the term -- trying to find a term that
18 would be mutually satisfactory with everyone. And we
19 talked about memorandum of agreement, you know. But
20 somebody could say, well, that is a contract or a compact,
21 you know. And somebody could say anything, you see; they
22 could define it as having some aspect.

23 But I hate for us to get down into, you know,
24 parsing words here when we're trying to achieve something,
25 which it may have some elements of a compact. I don't know

1 any -- every compact has in it some form of agreement. And
2 that's what I think we are trying to do is to just come to
3 some form of agreement. If we can stay away from that
4 word, maybe that's what we need to do.

5 MR. MOSS: Well, I think more fundamentally than
6 that, Senator, is -- and, I guess, a question for Carol is
7 we are now wrestling with two problems which have been
8 thrust upon us in a sense because we didn't -- we're trying
9 to correct -- correcting past sins, if you will. So those
10 are going to be, as we have said, pretty painful processes
11 to end up wherever we end up with those two issues.

12 We don't have, as of today, any dispute on this
13 river. We have no ongoing argument between the two states
14 about the river. Nobody is arguing with us or arguing with
15 each other about how much water somebody uses or doesn't
16 use or anything else. So I guess my question is how do we
17 -- how do we create something, whatever it is, so that we
18 can prevent that dispute. Because, I'm convinced that,
19 again, like I said, it's a finite amount of water being
20 chased by what ultimately will be an infinite demand.

21 And if we all watched what happened when poor
22 little Habersham County walked in the door and tried to get
23 a permit to take some water out of the way, my god, you
24 would have thought the world had ended with the screaming
25 that went on. You look at what's happening in North

1 Carolina right now on the interbasin transfers above
2 Charlotte. And I sure want to avoid that.

3 I want to basically be able to say, look, we have
4 an understanding, this is what we've got, and if Georgia
5 wants to use its water in a particular way, god bless you,
6 do it, and if we want to use our water a particular way, we
7 should be able to do that, as long as we both understand
8 what has to stay in the basin to meet the needs of the
9 basin.

10 And if we don't do something like this, I don't
11 know how we get to that point, how we -- and maybe we do
12 the technical stuff and we come up with technical reports
13 and then we turn to the Governors and say, okay, we have
14 done the technical work, we are in agreement that these
15 documents pretty well describe the hydrologic environmental
16 situation, and we recommend, Governors, that you formally
17 constitute another group to negotiate a compact, or you can
18 charge us with that responsibility. I mean, to me, I'm
19 just looking at some path forward --

20 DR. COUCH: Oh yeah, yeah.

21 MR. MOSS: -- that moves us closer to where --

22 DR. COUCH: No, I do appreciate that.

23 MR. MOSS: -- to where we've got to get.

24 DR. COUCH: I just want to -- and that's why I
25 think we need to be thinking about this. And I think early

1 in our conversation, Mike, it is -- I want to be very
2 clear. It's not that we have any particular reason at this
3 point in time to say we do or don't want a compact with
4 South Carolina.

5 MR. McSHANE: I would agree with you.

6 DR. COUCH: Okay. So the --

7 MR. McSHANE: If this group were to decide that
8 that's something that -- it may be that it's different
9 groups that get together to actually move from that point
10 forward.

11 MR. BOARDMAN: That's what I --

12 MR. McSHANE: I mean, I don't -- I would suggest,
13 in fact, we ought to -- if we get to that point, then we
14 probably ought to look at if there is a more appropriate
15 group to sit down and work out something --

16 DR. COUCH: That could be, and I think that's the
17 sort of thing that I know Governor Perdue would hope this
18 group, with some, hopefully, consensus between the states,
19 would recommend to the respective governors.

20 It's hard -- what I struggle with sometimes is we
21 know we have some near-term resource issues that if we
22 don't address independent of, you know, a larger framework
23 of net allocation approaches, or how ever we would term
24 them, if we don't deal with them, you know, we know that we
25 could very easily be in a confrontational mode, very

1 easily. And I think to date the issues of the aquifer and
2 the TMDL are certainly on that near-term agenda and will
3 continue to be so.

4 But the charge to these teams through our
5 parallel executive orders, the essence of the operative
6 language of the charge in there, after you get through the
7 "whereas's" and all, is the following. This is the
8 operating piece here, and it's the Committee and their
9 counterparts, meaning the Georgia Committee and the South
10 Carolina counterparts in this context, from the Governor,
11 Savannah River Committee, shall convene a bistate forum to
12 identify and discuss issues of mutual interest related to
13 the water resources of the Savannah River Basin.

14 That is a broad charge, a broad charge. And at
15 the time I think it was extremely notable and I think
16 leadership on both governors to recognize that we needed to
17 get a group of senior folks that were able to get together
18 and talk and tee up some of these issues.

19 But explicitly embedded in that, I can't
20 interpret immediately that we can get to the point where we
21 talk about the allocation of the water. So I'm looking for
22 -- and it may be that we just need at some point here to
23 think hard about making some specific recommendations to
24 our Governor on the path forward and just doing a gut check
25 with both of them.

1 MS. HAGOOD: Well, you know, maybe one way to
2 kind of synthesize all of this as a process is -- and in my
3 mind I've got to really simplify it -- is to take these out
4 -- we've got a couple of issues we talked about that have a
5 time --

6 DR. COUCH: Yeah.

7 MS. HAGOOD: -- factor on them; the clock is
8 running. And this is a more comprehensive approach. And
9 maybe a suggestion I have here is that you-all take and
10 we'll take what Dean on a macro level, the broadest of all
11 -- I mean, y'all talk about it as a committee and kind of
12 come back --

13 DR. COUCH: Good, good.

14 MS. HAGOOD: -- with what you're comfortable with
15 on that. And then I might suggest -- we kind of talked
16 about the other two issues on the -- have EPA come, give
17 their presentation, let that be Plan "A" for that.

18 And on the aquifer, if I can take what you
19 suggested at the end of the aquifer discussion, I've kind
20 of boiled it down to this, take more of an action plan on
21 that with four steps, which is basically I'm regurgitating,
22 Dean, what you said, establishing a goal of stopping the
23 plume growth as quickly as reasonably possible, establish a
24 schedule and a timetable, benchmarks for doing that,
25 develop and agree upon measures that each state will take

1 to do that, and continue the data collection and research
2 as necessary as we go to evaluate as we go, and maybe set
3 up a small team, two from each state, to do that as quickly
4 as possible to come up with that action plan on that issue
5 now, and we leave this meeting with that in place, a macro
6 response to this, and we set a meeting to hear from EPA on
7 a presentation on the DOTMDL issue. Now, how does that --

8 DR. COUCH: Well, I think, as far as wrapping up
9 -- I think it's going to take some -- I mean, like I said,
10 the components in here are logical. Are they in this
11 framework or a different one or do we need -- can we tackle
12 a piece of it? And I think it needs a check back with
13 certainly Governor Perdue, and I think we will do that and
14 come back with some specifics about the components in here.

15 And, quite frankly, what you have laid out, in
16 some ways, as we talked earlier, is very compatible with
17 some of the directions we are taking with our regional
18 water planning. So I guess my general issue is where does
19 it fit in the puzzle as far as getting it done and what is
20 the role of this particular group in that regard. So I
21 think that that recommendation may be at the next meeting
22 to have a discussion on.

23 MR. McSHANE: Would it be helpful to have our
24 governors clarify those? Am I misunderstanding or

1 understanding correctly is there a difference of opinion on
2 the clarity of what our roles are here?

3 DR. COUCH: Well, I think one of the things that
4 we haven't done as a group is -- at least we haven't done
5 on the Georgia side quite yet -- Governor Perdue has been
6 certainly informed as we have gone along, but he was
7 expecting that there be some point, after we got engaged in
8 this process, that we would be bringing to him a specific
9 agenda.

10 And if that agenda includes we have identified
11 the need for us to think maybe more broadly than we did on
12 the outset relative to a compact, that's something we can
13 bring to him. It's just not something that has been part
14 of his immediate vision at this point in time. Not because
15 it's not a good idea; it's just that, you know, remember,
16 when we started this it was in the context of resource
17 issues that were very pressing, as Elizabeth talks about.

18 But working on those is not the complete solution
19 either, as Dean points out. So I think maybe that what
20 this group needs to do is recommend specifically how to
21 move forward, and this might be a very adaptable framework
22 to begin talking from.

23 MR. BOARDMAN: Dean, that's what I like about
24 what you have written down is that it provides -- I mean,
25 we can talk about the individual points at another time,

1 but I think it provides some framework for this group which
2 initially we talked about at the first meeting but, as
3 Elizabeth said, we had two pressing issues that we jumped
4 on board with and we agreed by state committee to tackle
5 TMDL and to tackle the saltwater intrusion.

6 And while those are very important issues, I
7 think we ultimately need to get back to, you know, that are
8 are in agreement on so many things. Like you said, we are
9 not -- you know, I wanted to be involved in this Committee
10 as a proactive measure before we go there, and we're there.
11 I mean, we're not there at a disagreement mode, but we are
12 here because we are both proactive about this issue rather
13 than reactive. And I think this would help us go along
14 that path, and I think the framework is good to give this
15 body -- this group some framework.

16 And I know, as Carol said, the "compact" word is
17 something we don't have the authority to necessarily talk
18 about, and I don't even know if we're there with this.
19 It's just -- it's, I guess, a legal issue to bring up.

20 DR. COUCH: And I know you didn't use the word
21 and you didn't intend it in that framework. But from our
22 experience with negotiating to compacts over a dozen years,
23 this is a large element of what that process is all about.
24 And so if I were to describe this to the Governor, he would
25 immediately look at that and say, "This is a compact; isn't

1 it?" And so, we have to break it down in ways that relate
2 back to objectives and that confirms the scope of what he
3 would like us to get accomplished.

4 MR. MOSS: Well, I guess -- and I certainly
5 appreciate that. Again, this was a thought process more
6 than it was some kind of a hard recommendation or anything
7 else. I guess the question is and one thing that we
8 touched on briefly, I guess, in our first meeting is let's
9 just say we don't want to do a compact between the two
10 states, what other alternative is there for us to ensure
11 that we manage these resources correctly and collectively
12 and peacefully for the benefit of both states over the
13 long-term.

14 If we can come up with another way to do it, I'm
15 quite sure, I think from what I have heard folks in this
16 group on our side say, we would be glad to work that way
17 rather than try to go to a compact or do anything else.
18 But the bottom line is we have got to figure out how to do
19 that --

20 DR. COUCH: Yeah.

21 MR. MOSS: -- one way or the other; because,
22 otherwise, we end up --

23 DR. COUCH: Well, you know, there aren't that
24 many -- I mean, I know you're well-informed in terms of how
25 other states have made their sausages in this regard or

1 spoiled the soup, as it might be, but -- and that's why I
2 say that it's not to say that there is sort of a negative
3 view of compact in the context of what might be the
4 mechanism here between Georgia and South Carolina.

5 It has more to do with realizing that in most
6 circumstances where a compact has been the route, and there
7 is a diversity of forms that takes, it almost invariably,
8 and I can't name in circumstance, requires Legislative
9 action on behalf of both states.

10 MR. MOSS: And Congressional.

11 DR. COUCH: And Congressional action. So for our
12 governors to say that's where we're going to go means that
13 they need to explicitly say, yes, that's where we want to
14 go, and it will require a high degree of alignment with our
15 leadership in both Legislatures plus our Congress. And so
16 it's not a -- it's not a small thing to say we want to do
17 that, because if we're going to do it, I can be sure to
18 tell you this; we don't want to not succeed at it. And
19 that means --

20 MR. McSHANE: I think it goes without saying.

21 DR. COUCH: Yeah.

22 MR. McSHANE: We would understand that. I will
23 say, Carol, if Dean -- if you want to blame me because I
24 may have put in an impression -- because I go back to the

1 letter that was by Governor Perdue to Governor Sanford back
2 in March of '05.

3 DR. COUCH: Okay.

4 MR. McSHANE: And it says your office previously
5 had the foresight to initiate a discussion forum consisting
6 of representatives from our two states. The stated
7 objective of this effort was to create context for which
8 the two states would be able to discuss mutual interests,
9 issues of concern on the other side of the Savannah River.
10 That then became --

11 DR. COUCH: Yeah, and that's very similar --

12 MR. McSHANE: -- the format of the --

13 DR. COUCH: -- to the language that -- yeah,
14 right.

15 MR. McSHANE: -- executive orders that were --
16 magically mirrored each other for what we're doing.

17 DR. COUCH: Yeah.

18 MR. McSHANE: And compact may be one element and
19 it may not be an element.

20 DR. COUCH: I think we just need -- but, Dean, I
21 think the proposal you've got today gives us a good basis
22 and a framework to start talking about this issue. So I
23 think that's a contribution I do appreciate.

24 MS. HAGOOD: So you're comfortable -- I just want
25 to make sure I understand.

1 DR. COUCH: Yeah.

2 MS. HAGOOD: You're comfortable looking at this
3 -- I mean, I'm talking loosely without using the "c" word,
4 you know, --

5 DR. COUCH: Well, right, I --

6 MS. HAGOOD: -- just kind of as a framework and
7 you're comfortable responding and having -- without us
8 getting that far. I mean, I'm comfortable with that, and I
9 think we are. I just want to make sure we're not asking
10 you to do anything you're not comfortable with.

11 DR. COUCH: You're not asking anything that's not
12 comfortable. It's just that if we are to in earnest say
13 that this is what we want to do, we need to make sure it's
14 in the scope of what our Governor --

15 MS. HAGOOD: Sure.

16 DR. COUCH: -- is comfortable with.

17 MS. McSHANE: Absolutely. But I don't think
18 we're even --

19 DR. COUCH: And, secondly, --

20 MR. McSHANE: -- looking to suggest it --

21 MS. HAGOOD: No, we're not --

22 DR. COUCH: -- you know, this is not -- this
23 is --

24 MR. McSHANE: -- to our Governor that that is
25 what we would want to do.

1 DR. COUCH: -- this is a framework for some
2 thinking. It's thinking about the Savannah River.

3 MS. HAGOOD: That's right.

4 DR. COUCH: And as, I think, Braye said, it's a
5 great -- it's a great starting point for us to talk about,
6 well, because, as I said to Dean earlier, this is very
7 logically laid out. You know, if we're going to start with
8 a skeleton of a road map, we've got a good piece of it
9 here.

10 MR. BOARDMAN: And not to put words in your
11 mouth, but I don't see anything negative about it. I
12 think --

13 DR. COUCH: No.

14 MR. BOARDMAN: -- it's just being cautious, just
15 to make sure we understand what the Governor --

16 MS. HAGOOD: Absolutely.

17 MR. McSHANE: We're not eager to get into
18 anything other that we may regret, --

19 MR. BOARDMAN: Yeah.

20 MR. McSHANE: -- as well.

21 MR. BOARDMAN: Yeah.

22 MR. McSHANE: But I think it's -- it's, I think,
23 also equally as prudent to say I'm not interested in not
24 taking an opportunity that is probably as unique in the
25 country as we have. We are not a downstream; we are a

1 bordered river. We have identified a number of resource
2 issues. And we have the resources behind us and staffs
3 that we can put together resolutions to this versus
4 allowing what could eventually happen is have a third party
5 decide what was going to happen to where nobody wins at
6 that point.

7 DR. COUCH: Oh, I --

8 MR. BOARDMAN: I agree with you 100 percent.

9 MR. McSHANE: Okay.

10 DR. COUCH: I think that's a succinct way of
11 saying why we're here, really.

12 MR. McSHANE: And I would further -- in a letter
13 that I think everyone has seen that came from Governor
14 Sanford to Governor Perdue on Wednesday says I have asked
15 the South Carolina Committee Members to work with your
16 counterparts in Georgia to establish -- and he just lists
17 the measurable goals for the short and long-term to give
18 both sides a framework for discussion. And I think we are
19 being very consistent in that.

20 DR. COUCH: Excellent. Good.

21 SENATOR WALDREP: Well, one concern I have, I
22 guess, in all that we say and all that we do is the speed
23 at which we move. And I realize that there are -- people
24 have got different concepts of how much time they need.
25 However, just looking at -- this is a kind of a negative

1 way of looking at it, but my experience in dealing with
2 government bodies over the years in my state, sometimes we
3 go so slow that those people who at one time had the
4 opportunity to do something are no longer there and another
5 group has to be appointed and somebody else has to come in
6 and they start all over.

7 And you talked about reinventing the wheel. I
8 guess I use our local Planning and Department of Highways
9 for some reason. That's perhaps a bad illustration, but
10 they plan and they plan and they plan, and by the time you
11 get to a certain point, those plans are no longer relevant;
12 so you start all over again.

13 I mean, I just say that for the reason that,
14 again, we have got a very unique opportunity, I think,
15 while we are alive on the planet before we get too much
16 older and the Grim Reaper overtakes us, you know, in some
17 way that we can actually do something, you know. So I just
18 want us to keep that in mind as a point of inspiration.

19 DR. COUCH: Thank you.

20 MR. McSHANE: We had put on the table earlier, I
21 think, your suggestion that you were very articulate on,
22 the ground-water. Is that something that --

23 DR. COUCH: Yeah. I think --

24 MR. McSHANE: I'd like to kind of make sure I
25 understand what the end result is going to be.

1 DR. COUCH: Well, I think Elizabeth kind of
2 touched on those. There are three areas on this particular
3 subject I think each team needs to do some evaluation, some
4 conversation, so that we can be prepared at a next meeting
5 to maybe pick up this framework discussion. That was one.

6 MS. HAGOOD: Do we want to do that or move
7 forward faster? Because, I mean, maybe we could do that
8 together. And one other option is that you have kind of
9 the subcommittee that kind of moves forward in developing
10 that together with maybe two from South Carolina, two from
11 Georgia.

12 MR. MOSS: I think Carol is talking about --

13 MS. HAGOOD: The overall.

14 MR. MOSS: -- the surface water -- the river
15 thing we're going to talk -- we're going to --

16 MS. HAGOOD: Oh, I thought she was talking about
17 aquifer.

18 MR. MOSS: No, she hasn't gone over the aquifer
19 yet.

20 MS. HAGOOD: Oh, I'm sorry; I leapt ahead.

21 DR. COUCH: That's okay. So if we can --

22 MS. HAGOOD: Oh, absolutely. Okay.

23 DR. COUCH: If we can follow up with regard to
24 this, --

25 MS. HAGOOD: I'm sorry. Yes.

1 DR. COUCH: -- let's bring it back to our plates
2 after we have had some opportunity to talk about it.

3 MR. McSHANE: Specifically on Dean -- sort of
4 Dean's initiative.

5 DR. COUCH: Yeah, because it is -- I mean, it is
6 a good discussion framework.

7 As to the -- and then the other thing that we had
8 talked about doing is forming a -- I guess we'll call it a
9 team here of two individuals from each state that will work
10 specifically on following up on the development of what we
11 are calling a plan or an action plan for addressing the
12 aquifer management. And that seems to be very reasonable
13 and appropriate to do, and we could probably do that in --

14 MR. McSHANE: I think it's timely with the USGS
15 model.

16 DR. COUCH: Yeah. So maybe we should talk about
17 that for a moment. It might be good just to identify -- I
18 have been thinking through the afternoon how we would do
19 that on the Georgia side, and I think it -- my perspective,
20 it would require somebody from EPD at a technical level to
21 be directly engaged, and I have a couple of options. But I
22 -- I guess this is a long-winded way of saying let's do
23 this, but I'm not prepared to say who today.

24 MR. McSHANE: Well, and I would suggest that
25 we're not either.

1 DR. COUCH: Okay.

2 MR. McSHANE: Because, I think we -- I think I
3 would suggest that we probably have a technical staff that
4 needs to be on there.

5 DR. COUCH: But if we could say maybe --

6 SENATOR WALDREP: We might want it a little bit
7 larger. We might want some additional. You know, not too
8 many.

9 MS. HAGOOD: No, I like small.

10 MR. McSHANE: I kind of like keeping it at two.

11 DR. COUCH: Lean and mean would be good in this
12 case --

13 SENATOR WALDREP: Okay.

14 DR. COUCH: -- just for conversation. But if we
15 could have a date certain by which to exchange that
16 information --

17 MS. HAGOOD: Yeah.

18 DR. COUCH: -- and get them to meet, then that
19 would be, I think, --

20 MR. McSHANE: What is a time frame that you would
21 be comfortable with; 30 days? I mean, I think we could do
22 it within two weeks.

23 DR. COUCH: Identifying names?

24 MR. McSHANE: Names, yeah.

25 DR. COUCH: That's reasonable.

1 MS. HAGOOD: Okay.

2 SENATOR WALDREP: When is our next meeting

3 DR. COUCH: We haven't discussed that yet.

4 MR. McSHANE: We haven't -- that's part of what

5 we have got to set up before we adjourn today.

6 DR. COUCH: So two weeks, business days, from

7 today we will be sharing the names for this group.

8 Dean, if you could, maybe in an e-mail to us,

9 bullet the ideas that you had that were the scope of what

10 you were --

11 MR. McSHANE: Sort of the mission of --

12 MR. COUCH: Yeah.

13 MR. McSHANE: -- what that team is going to be

14 focused on?

15 DR. COUCH: Yeah.

16 MR. MOSS: I'll get that out Monday.

17 DR. COUCH: Okay.

18 MS. HAGOOD: And does that include -- are we

19 still comfortable with -- you said, what, three months?

20 MR. MOSS: My notion was that the --

21 MS. HAGOOD: For them to report back?

22 MR. MOSS: The idea was to say, at least from

23 South Carolina's perspective, a schedule that we can point

24 to and say we have a schedule that we are in agreement on

25 that will move us forward. You know, we recognize -- we

1 recognize all the things that are out there that have to be
2 reckoned with, but we have agreed on a schedule.

3 DR. COUCH: So their task is essentially
4 developing a work plan, --

5 MR. MOSS: Developing a work plan.

6 DR. COUCH: -- including a schedule?

7 MR. MOSS: Right.

8 MR. McSHANE: I like the word "work plan".

9 MS. HAGOOD: And this group reports back like
10 maybe at a January meeting?

11 MR. MOSS: Comes back and I was thinking coming
12 back in at our meeting in January, if we have one in
13 January, --

14 MS. HAGOOD: Okay.

15 MR. MOSS: -- our first meeting of the new year,
16 which should be fairly soon after January.

17 MR. McSHANE: And would that then include a
18 presentation from EPA?

19 MR. MOSS: In that same meeting I think we should
20 have a presentation from EPA.

21 DR. COUCH: Yeah. Now, I think it's going to be
22 hard for us today -- I think January, by the way, is the
23 right window to be looking at --

24 MS. HAGOOD: Okay.

1 DR. COUCH: -- for our next meeting. And I don't
2 know that we can set one with knowing that EPA can be
3 present. So --

4 MR. McSHANE: It would be my suggestion that we
5 just frame that a time frame is that we will have the work-
6 plan team, the EPA, come back to this team in January. We
7 can figure out the mechanics of the date as we have
8 conversation with EPA.

9 DR. COUCH: Within the next two weeks we will
10 have the two names and a hard date for a meeting in
11 January.

12 SENATOR WALDREP: Okay.

13 MR. BELL: Now, would the two names of those
14 individuals start meeting immediately to come back --

15 DR. COUCH: I think they would --

16 MR. McSHANE: I think they ought to.

17 DR. COUCH: -- they would need to.

18 MR. MOSS: I would say so.

19 MR. McSHANE: Is that your expectation that --

20 MR. BELL: Well, I mean, to try to -- I mean,
21 we're all here to accomplish something.

22 DR. COUCH: I think they have to --

23 MR. BELL: I use the word "proactive".

24 DR. COUCH: -- they have to hit the ground on it.

1 MR. McSHANE: I think that it would be my
2 expectation, as soon as they are named, they go.

3 MR. MOSS: Start working.

4 MR. McSHANE: Just hit the road.

5 MR. BELL: And that would be aquifer-driven
6 mostly?

7 MR. MOSS: Will be totally focused on the
8 aquifer.

9 MR. McSHANE: It's my premise that the model --
10 what we saw today is compelling enough to have that, have
11 that work-plan team just to attack that.

12 DR. COUCH: Okay. Was there any --

13 SENATOR WALDREP: So we will just work toward, I
14 guess, getting that date after we get that information, as
15 far as -- I mean for January?

16 DR. COUCH: Well, I guess --

17 MR. BELL: EPA will drive that date.

18 SENATOR WALDREP: All right. And we will just --
19 and who will be -- would you be contacting EPA?

20 DR. COUCH: We would be happy to. I mean, we're
21 going to have to take the lead --

22 SENATOR WALDREP: Okay.

23 DR. COUCH: -- with them in this and --

1 SENATOR WALDREP: All right. Well, if you would
2 contact EPA and then just kind of let us know whenever you
3 think it would be an appropriate time.

4 MR. McSHANE: We'll try and have that within two
5 weeks.

6 DR. COUCH: We'll get -- yeah, we'll get that
7 done so that we know what our date certain is for our
8 January meeting. The agenda is going to be crafted around
9 a report back from our --

10 MR. McSHANE: When does your Legislature go into
11 session? I'm sorry.

12 DR. COUCH: Second week in -- second -- the
13 second Monday in January.

14 The TMDL update from EPA. Any TMDL update that
15 we have from our staffs, I think, would be appropriate.
16 And then renew a conversation on this framework here. That
17 sounds --

18 SENATOR WALDREP: Meeting place?

19 MR. McSHANE: Well, I think we -- I was just
20 going to offer we will host it, you know, --

21 DR. COUCH: Excellent.

22 MR. McSHANE: -- and we will get the mechanics of
23 that.

24 SENATOR WALDREP: Okay.

1 MR. TANNER: You know y'all got a new standard to
2 meet, of course.

3 MR. McSHANE: Absolutely, and we can rise to that
4 challenge.

5 DR. COUCH: Okay.

6 MR. McSHANE: I might have a container ship
7 anchored right off our next meeting. A lot of cargo that's
8 leaving Charleston.

9 DR. COUCH: Okay. So y'all will get with us on
10 the specifics of the logistics after we have a date?

11 SENATOR WALDREP: Right.

12 DR. COUCH: Super.

13 MR. MOSS: And what I will do is I will try to
14 flesh out kind of what I feel would be critical in a work
15 plan --

16 DR. COUCH: Okay.

17 MR. MOSS: -- and blast that out in an e-mail.

18 DR. COUCH: Excellent. Excellent.

19 MR. McSHANE: My 10-year-old daughter, my middle
20 daughter, actually has offered a component that I am to
21 present as a possibility to assist us. She is -- in her
22 current fifth-grade class they have had some preliminary
23 discussions about the need for conservation at an age that
24 they can finally -- they have an -- they're not taking 30-
25 minute showers anymore. So in that she has offered me this

1 Easy button. When we get stuck on something, we'll always
2 have this.

3 DR. COUCH: We're counting on that at our next
4 meeting.

5 Well, is there any other business, any other
6 discussion that we need to have today?

7 SENATOR WALDREP: We want to thank you very much
8 for the hosting down here.

9 DR. COUCH: I think we need to give credit where
10 credit is richly due with Gus and --

11 SENATOR WALDREP: And Dean and Joe.

12 DR. COUCH: -- Dean and Joe for --

13 MS. HAGOOD: Thank y'all.

14 DR. COUCH: -- assisting with that.

15 MR. McSHANE: Carol, would it be -- could the
16 Court Reporter get us a copy of just today whenever it's
17 convenient?

18 I'm going to just ask if Carol will --

19 DR. COUCH: Yeah, I think at the last meeting was
20 the first meeting we had a court reporter, and I think we
21 agreed that we would be sharing the record. And I just
22 want to make sure that you all have it, right, for the last
23 meeting?

24 MR. McSHANE: Actually, I do not have that.

25 MR. MOSS: I have not seen it.

1 MS. HAGOOD: I have not seen it.

2 MR. McSHANE: So I was -- I need the meeting that
3 we had in Augusta, and then I would just ask that we get
4 today's.

5 DR. COUCH: Well, let me ask you something. This
6 would be kind of helpful with logistics because what we did
7 was send the minutes and what was promised for the Court to
8 the Governor's Staff and --

9 MR. McSHANE: And there was a transition there.
10 Austin, as you may know, is actually in law school now.

11 DR. COUCH: It would help us, you know, if we had
12 a conduit for making sure that things were disseminated.

13 MR. McSHANE: I'd like to -- Hank Stalworth, who
14 recently was promoted as Chief of Staff for the South
15 Carolina Department of Natural Resources.

16 DR. COUCH: Okay. So, Hank, can we -- I guess
17 you are being offered up as the conduit for making sure
18 that --

19 MR. STALWORTH: Yolanda and I talked about that.

20 DR. COUCH: -- information -- okay, good, because
21 we had shipped it over. So that's why I wanted to check,
22 because, you know --

23 MR. McSHANE: Could we see if you could help us
24 get the copies of the previous --

1 DR. COUCH: We will get it to Hank, and then Hank
2 will distribute it.

3 MR. McSHANE: Okay. He will take care of
4 distributing that.

5 DR. COUCH: Yeah.

6 MR. McSHANE: Okay.

7 DR. COUCH: And the others will be out as soon as
8 the Reporter can provide it. Okay.

9 MS. HAGOOD: I hear motion to adjourn.

10 DR. COUCH: Okay.

11 (Meeting adjourned at 3:15 p.m.)

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CERTIFICATE OF COURT REPORTER

STATE OF GEORGIA
COUNTY OF GLYNN

I, W. STEPHEN WALKER, CCR B-572, being a Certified Court Reporter in and for the State of Georgia at large, certify that the foregoing transcript of the meeting of September 22, 2006, held in my presence, is a true, correct and complete transcription of said meeting.

I FURTHER CERTIFY that I am neither a relative nor employee nor attorney nor counsel of any of the parties, nor a relative nor an employee of such attorney or counsel, nor financially interested in the action.

IN WITNESS WHEREOF, I hereby affix my hand and seal on this the 23rd day of October 2006.

_____(SEAL)

W. STEPHEN WALKER, CCR B-572