



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

*See
Reports*

January 23, 1995

APPLICANT: Tennessee Valley Authority (TVA)
FACILITY: Watts Bar Nuclear Plants Units 1 and 2
SUBJECT: MEETING SUMMARY - January 10, 1995, MEETING ON THE DRAFT
SUPPLEMENT (NUREG-0498, SUPPLEMENT 1) TO THE FINAL ENVIRONMENTAL
STATEMENT RELATED TO THE OPERATION OF WATTS BAR NUCLEAR PLANT
UNITS 1 AND 2

On January 10, 1995, the Nuclear Regulatory Commission (NRC) held a meeting to provide members of the public with an overview of the NRC environmental review, describe the conclusions in the draft supplement, and provide the public with an opportunity to ask questions and provide comments on the draft supplement. Following a NRC presentation (Attachment 1) several members of the public asked questions and provided comments on the draft supplement. Details of these comments and questions can be found in the meeting transcript (Attachment 2).


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Project Directorate
Associate Directorate for Advanced Reactors
and License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-390
and 50-391

Attachments:
Attachment 1: Slides from the NRC presentation
Attachment 2: Meeting transcript

cc w/enclosures:
See next page

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WATTS BAR NUCLEAR PLANT

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January 23, 1995

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01/20/95	01/20/95	01/23/95	01/23/95

DOCUMENT NAME: FLANDERS WATTS BAR SUMMARY

50-390

TVA

WATTS BAR 1

MEETING SUMMARY - JANUARY 10, 1995, ON
THE DRAFT SUPPLEMENT (NUREG-0498,
SUPPLEMENT 1) TO THE FES.

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WATTS BAR ENVIRONMENTAL REVIEW

NRC PUBLIC MEETING

JANUARY 10, 1995

SWEETWATER, TENNESSEE

WATTS BAR ENVIRONMENTAL REVIEW

AGENDA

- ◆ Introduction
- ◆ Meeting Purpose
- ◆ Background
- ◆ NRC Review
- ◆ Evaluation and Results of NRC Severe Accident Mitigation Design Alternatives Analysis
- ◆ PNL presentation of the FES Supplement
- ◆ Open the floor for comments and questions

WATTS BAR ENVIRONMENTAL REVIEW

BACKGROUND

- ◆ The National Environmental Policy Act (NEPA) requires all federal agencies to consider the affects on the environment before taking a major federal action (i.e. licensing a plant, building a bridge, etc.)
- ◆ As a federal agency the Nuclear Regulatory Commission (NRC) is required to comply with NEPA. 10 CFR Part 51 is the NRC rule implementing NEPA
- ◆ The Final Environmental Statement (FES) related to the construction and operation of Watts Bar was issued in 1972
- ◆ NRC issued an FES related to the operation of Watts Bar in 1978, which supplemented the statements described in the 1972 FES
- ◆ This supplement updates the 1978 FES

WATTS BAR ENVIRONMENTAL REVIEW

NRC REVIEW

- ◆ The NRC initiated a review of the Watts Bar environment to determine the necessity of a supplement
- ◆ The NRC's review did not identify any substantial changes to the proposed action, significant new circumstances or environmental concerns
- ◆ The NRC determined that the preparation of a supplement to the FES was consistent with the spirit of NEPA and would further the purposes of NEPA
- ◆ The NRC is also consulting with the U.S. Fish & Wildlife Service regarding the endangered species found in the vicinity of the site

WATTS BAR ENVIRONMENTAL REVIEW

FES SUPPLEMENT

- ◆ The NRC welcomes public comments on the draft supplement. Written comments can be sent to:
 - Chief, Rules Review and Directives Branch
 - U.S. Nuclear Regulatory Commission
 - Washington, D.C. 20555-0001or delivered to:
 - Two White Flint North
 - 11545 Rockville Pike
 - Rockville, Maryland 20853

- ◆ The comment period will end January 30, 1995

**Final Environmental Statement
Related to the Operation of
Watts Bar Nuclear Plant,
Units 1 and 2**

**NUREG-0498
Supplement No. 1**

Purpose

- ❖ **Discuss process**
- ❖ **Describe results**
- ❖ **Present conclusions**

Process

- ❖ Reviewed FES and additional information generated since 1978
- ❖ Asked direct questions of TVA/received written responses
- ❖ Participated in site review visit (September 12 and 13, 1994)
- ❖ Asked followup questions/received written responses

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- 1. Introduction**
- 2. The Site**
- 3. The Plant**
- 4. Environmental Effects of Site Preparation and Plant and Transmission Facilities Construction**
- 5. Environmental Impact of WBN Plant and Transmission Facilities Operations**
- 6. Environmental Monitoring Program**
- 7. Accident Analysis**
- 8. Consequences of Proposed Actions**

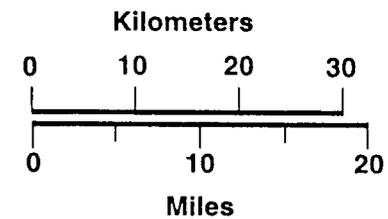
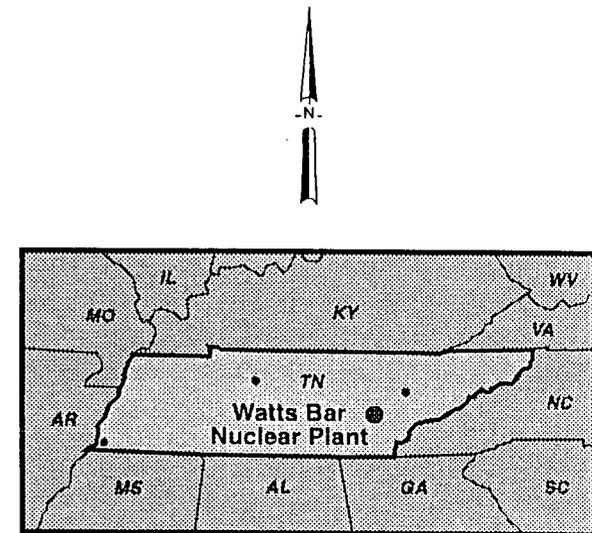
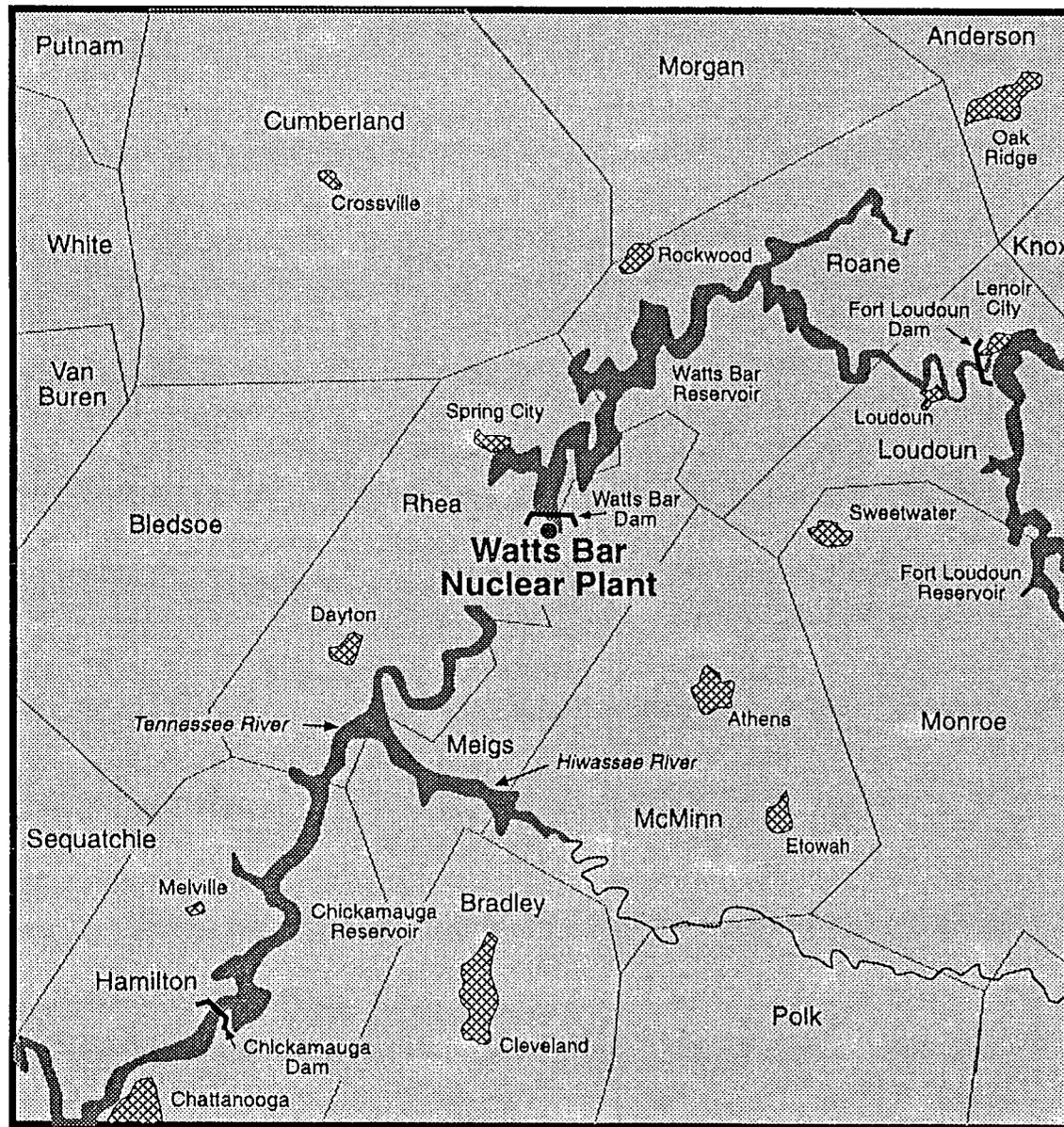
Presentation Road Map

- ❖ **Changes in plant design and operation**
- ❖ **Changes and potential impacts on the environment**
 - **River use**
 - **Aquatic ecology**
 - **Terrestrial ecology**
- ❖ **Changes and potential impacts to people**
 - **Socioeconomic**
 - **Radiological**
 - **Nonradiological**
- ❖ **Environmental monitoring programs**

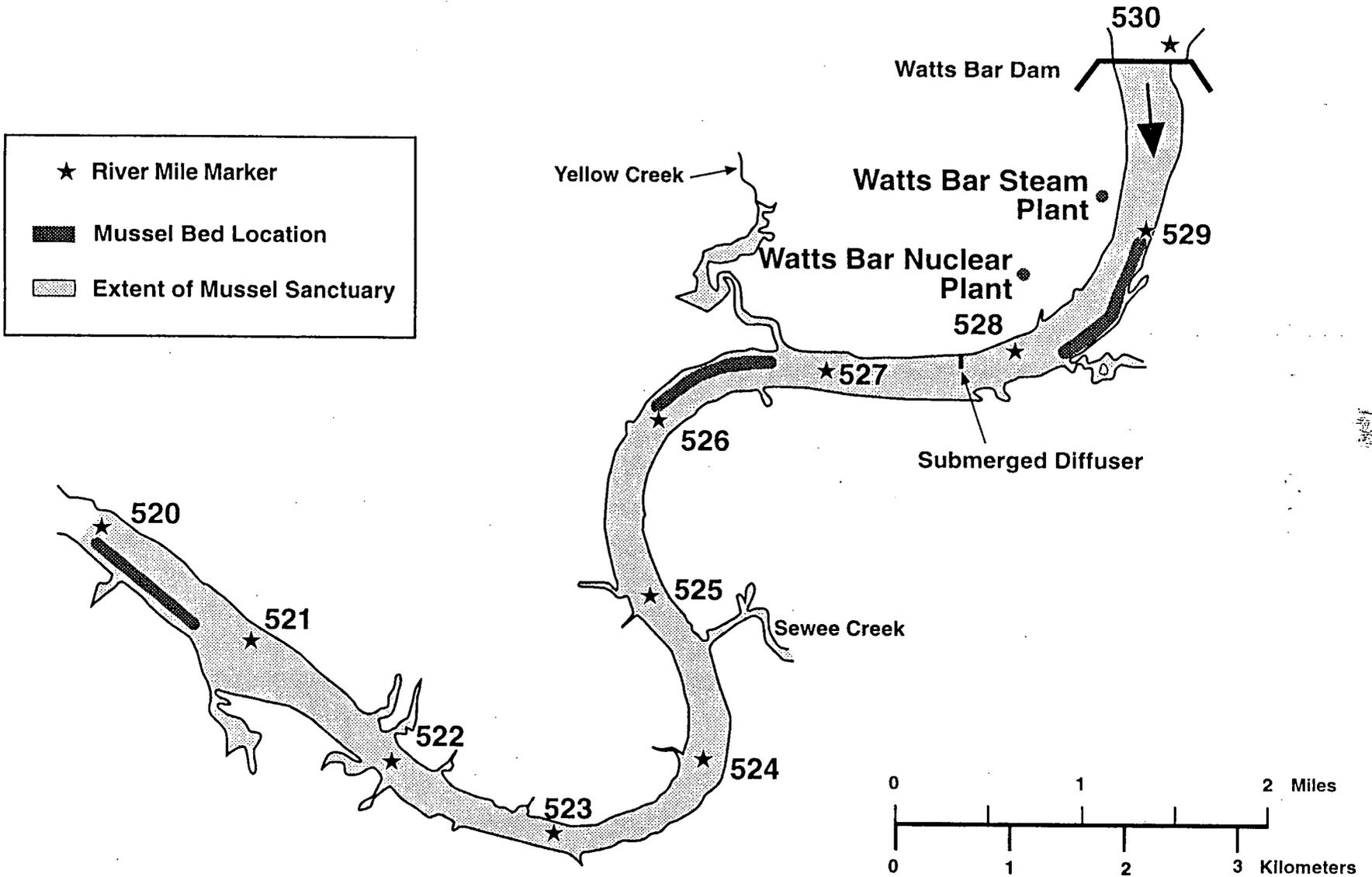
Presentation Road Map

- ❖ *Changes in plant design and operation*
- ❖ **Changes and potential impacts on the environment**
 - River use
 - Aquatic ecology
 - Terrestrial ecology
- ❖ **Changes and potential impacts to people**
 - Socioeconomic
 - Radiological
 - Nonradiological
- ❖ **Environmental monitoring programs**

Location of the Watts Bar Nuclear Plant



Location of the Watts Bar Nuclear Plant



Changes in WBN Plant Design and Operation

- ❖ **Holding ponds**
- ❖ **Radioactive waste treatment system**
- ❖ **Chemical treatment systems**

Changes in Radioactive Waste Treatment System

- ❖ **Liquid waste will be processed through a mobile demineralizer system**
- ❖ **Spent resins will be disposed of offsite**

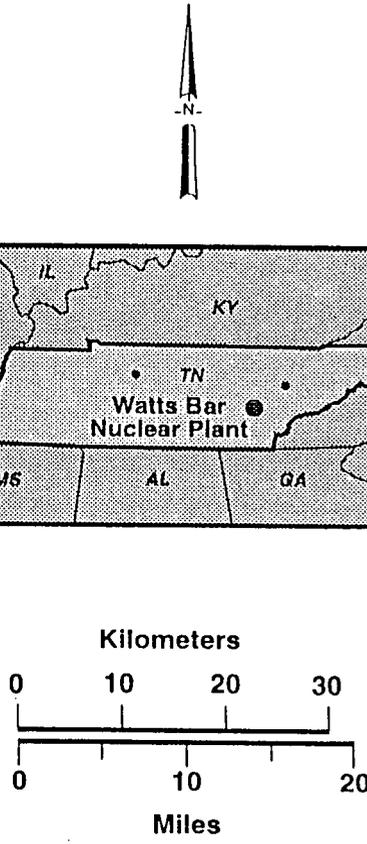
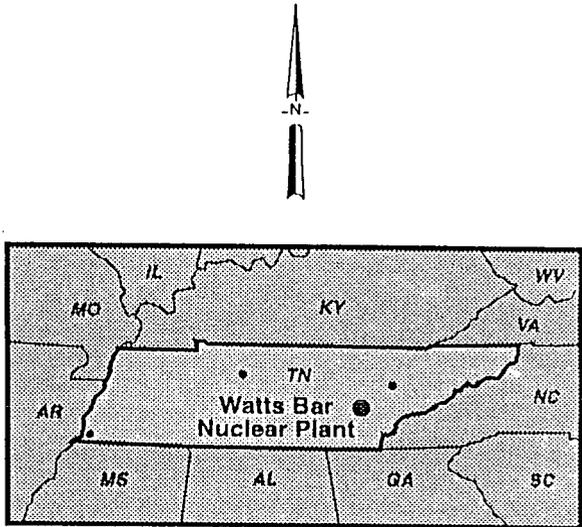
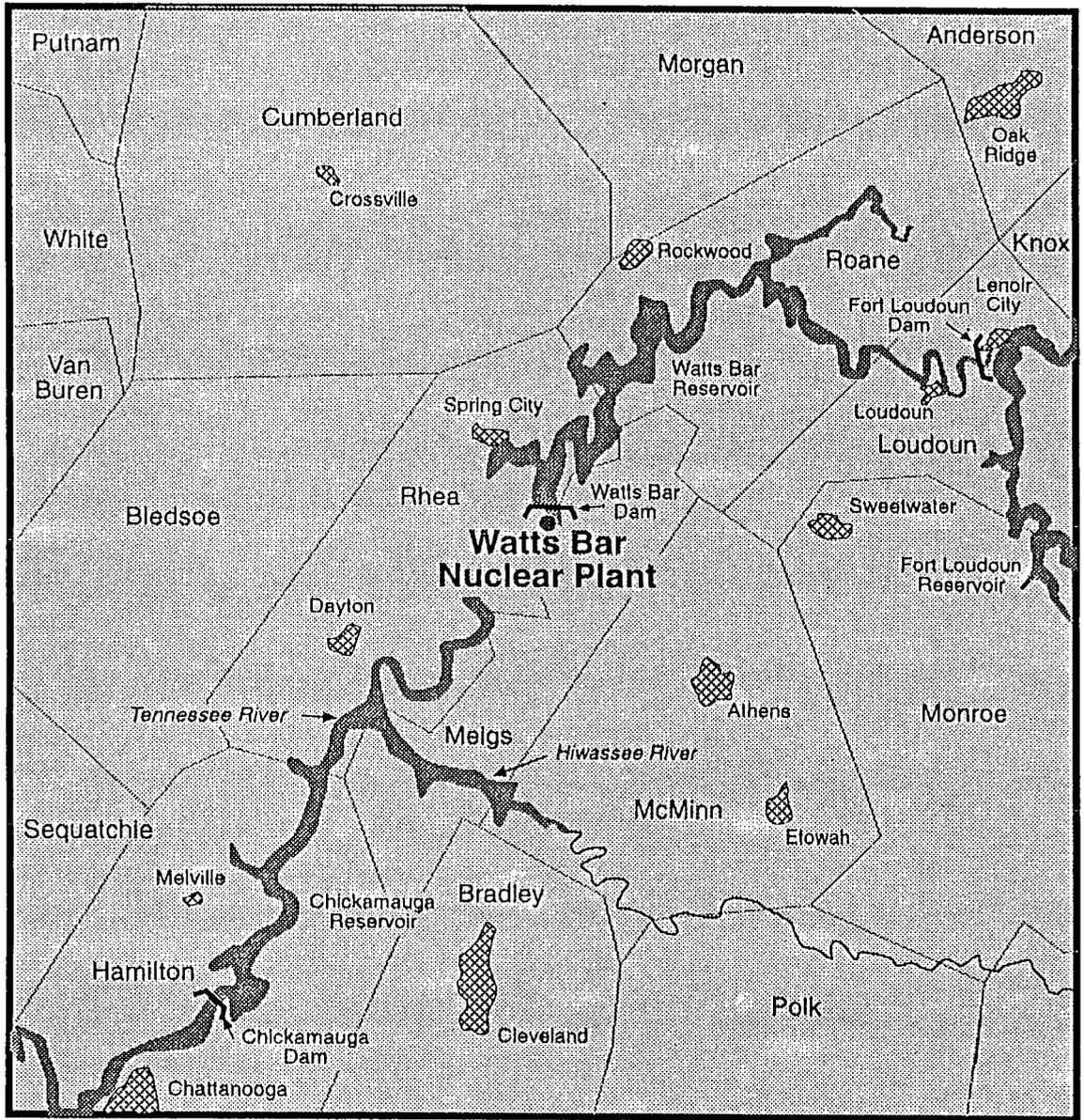
Changes in Chemical Use

- ❖ **Steam generator feedwater**
- ❖ **Raw cooling water**
- ❖ **Component cleaning**

Presentation Road Map

- ❖ **Changes in plant design and operation**
- ❖ ***Changes and potential impacts on the environment***
 - *River use*
 - *Aquatic ecology*
 - *Terrestrial ecology*
- ❖ **Changes and potential impacts to people**
 - **Socioeconomic**
 - **Radiological**
 - **Nonradiological**
- ❖ **Environmental monitoring programs**

Location of the Watts Bar Nuclear Plant



Water Quality

- ❖ **No major changes since the NRC's 1978 FES**

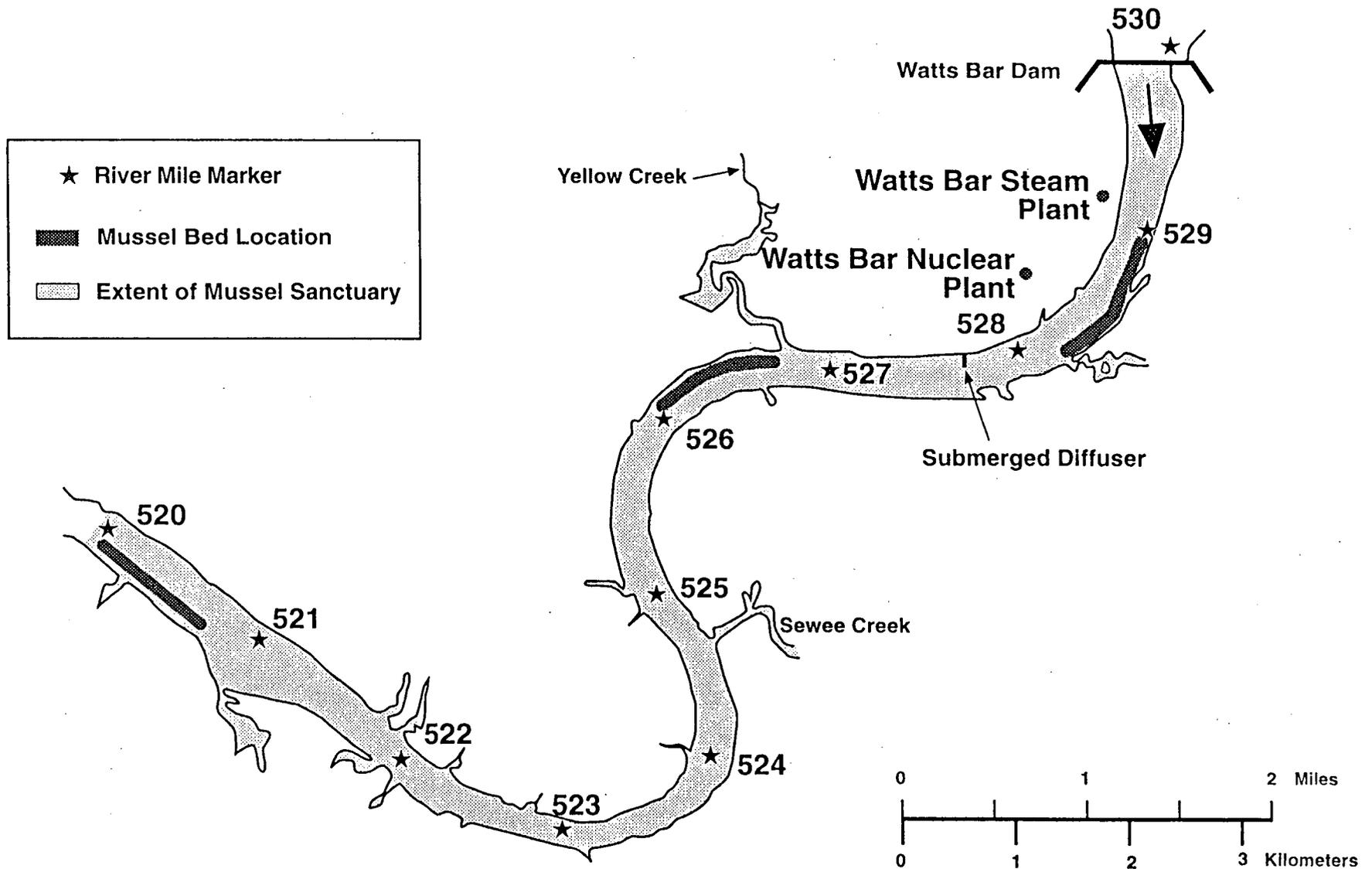
No Impacts are Expected on:

- ❖ **Surface water supply**
- ❖ **Ground water supply**
- ❖ **River recreational use**

Aquatic Ecology

- ❖ Large aquatic plants**
- ❖ Fish**
- ❖ Mussel populations**
 - Native species/endangered species**
 - Introduced species**

Location of the Watts Bar Nuclear Plant



Threatened and Endangered Aquatic Species

	<u>Federal Status</u>	<u>State Status</u>
BIVALVES		
Dromedary pearly mussel	Endangered	Endangered
Pink mucket	Endangered	Endangered
Fanshell	Endangered	Endangered
Rough pigtoe	Endangered	Endangered
Tennessee clubshell	Candidate	—
Pyramid pigtoe	Candidate	—

Threatened and Endangered Aquatic Species (continued)

	<u>Federal Status</u>	<u>State Status</u>
FISH		
Blue sucker	Candidate	Threatened
Snail darter	Threatened	Threatened
AMPHIBIANS		
Eastern hellbender	Candidate	In need of management

Factors Determined to be Insignificant in the Aquatic Environment

- ❖ Entrainment and impingement of aquatic biota**
- ❖ Thermal effects**
- ❖ Chemical effects**
- ❖ Increase in nuisance aquatic organisms**

Terrestrial Ecology

- ❖ Land use
- ❖ Endangered/threatened species

Threatened and Endangered Terrestrial Animal Species

	<u>Federal Status</u>	<u>State Status</u>
BIRDS		
Bald Eagle	Endangered	Endangered
Osprey	—	Endangered
Cooper's hawk	—	Threatened
Sharp-shinned hawk	—	Threatened
Grasshopper sparrow	—	Threatened
MAMMALS		
Gray bat	Endangered	Endangered

Threatened and Endangered Terrestrial Plant Species

	<u>Federal Status</u>	<u>State Status</u>
PLANTS		
Auriculate false foxglove	Candidate	Endangered
Tall larkspur	Candidate	Endangered
Bugbane	Candidate	Threatened
False foxglove	Candidate	Threatened
Goldenrod	—	Endangered
Bush honeysuckle (two species)	—	Threatened
Goldenseal	—	Threatened

Factors Determined to be Insignificant in the Terrestrial Environment

- ❖ **Mechanical clearing and herbicide use**
- ❖ **Erosion**
- ❖ **Cooling tower/steam plant plume interactions**
- ❖ **Noise levels**
- ❖ **Electromagnetic Fields (EMF)**
- ❖ **Collisions of birds with cooling towers and power lines**

Presentation Road Map

- ❖ **Changes in plant design and operation**
- ❖ **Changes and potential impacts on the environment**
 - **River use**
 - **Aquatic ecology**
 - **Terrestrial ecology**
- ❖ ***Changes and potential impacts to people***
 - ***Socioeconomic***
 - ***Radiological***
 - ***Nonradiological***
- ❖ **Environmental monitoring programs**

Pathways for Radiological Impacts

- ❖ **Liquid release pathways**
 - Eating fish
 - Drinking water

- ❖ **Airborne release pathways**
 - Direct radiation
 - Breathing air

Radiological Impacts – Population Dose

- ❖ **Airborne releases – less than 0.002% of annual doses from natural radiation sources**
- ❖ **Liquid releases – less than 0.001% of the annual doses from natural radiation sources**

Health Effects of Radiation Doses from Effluents

	<u>Normal Incidence of Fatal Cancers</u>	<u>Estimated Incidence of Fatal Cancers from WBN</u>
Maximally exposed individual	2 chances in 10	3 chances in one million
Offsite population	220,000	Less than 1 (0.01)

Factors Determined to be Insignificant to Human Health

- ❖ **Ionizing radiation**
- ❖ **Electromagnetic fields and shock hazards**
- ❖ **Airborne pathogenic microorganisms**
- ❖ **Noise levels**
- ❖ **Air quality**

Presentation Road Map

- ❖ **Changes in plant design and operation**
- ❖ **Changes and potential impacts on the environment**
 - **River use**
 - **Aquatic ecology**
 - **Terrestrial ecology**
- ❖ **Changes and potential impacts to people**
 - **Socioeconomic**
 - **Radiological**
 - **Nonradiological**
- ❖ ***Environmental monitoring programs***

Preoperational Monitoring Programs

- ❖ Onsite Meteorological Program**
- ❖ Water Quality Studies**
- ❖ Groundwater Studies**
- ❖ Aquatic Biological Monitoring**
- ❖ Terrestrial Monitoring**
- ❖ Radiological Monitoring**

Environmental Monitoring Program

The following operational monitoring programs will begin when WBN Unit 1 begins operation:

- ❖ Onsite Meteorological Program**
- ❖ Water Quality Monitoring**
- ❖ Groundwater Monitoring**
- ❖ Chemical Monitoring**
- ❖ Aquatic Biological Monitoring**
- ❖ Terrestrial Monitoring**
- ❖ Radiological Monitoring**

Conclusions

Changes in the:

- Design of WBN Plant**
- Proposed operations of WBN Plant**
- Population and employment**
- Terrestrial and aquatic environment**

will not result in any significant change in environmental impacts.

Official Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

Title: Watts Bar Environmental Review
Public Meeting

Docket Number: (not applicable)

Location: Sweetwater, Tennessee

Date: Tuesday, January 10, 1995

Work Order No.: NRC-90

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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WATTS BAR ENVIRONMENTAL REVIEW

PUBLIC MEETING

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TUESDAY

JANUARY 10, 1995

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SWEETWATER, TENNESSEE

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The Public Meeting convened at the Quality
Inn, Andrew Johnson Room, 1421 Murray's Chapel Road, at
7:00 p.m., Scott Newberry, presiding.

I N D E X

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MR. NEWBERRY: Let's get started.

Welcome to everyone tonight.

My name is Scott Newberry. I am Director of the License Renewal and Environmental Review Project Directorate at NRC Headquarters, Office of Reactor Regulation.

As many of you may recall, we held a meeting here in September to inform the public regarding the NRC approach for completing the Watts Bar Environmental Review.

During that meeting I stated that the NRC intended to issue a supplement to the Watts Bar Environmental Statement. Since then we have published a draft of the supplement for public comment. The comment period on the draft closes at the end of this month.

During that last meeting to describe the process for doing the environmental review a number of people expressed concerns about certain environmental issues related to the operation of Watts Bar.

As you may be aware, those of you that have looked at the supplement, many of those issues that were discussed in the September meeting are already addressed in the supplement -- issues such as molluskicides that are used by TVA, changes in population and economic issues,

1 and also concerns of certain endangered species located in
2 the vicinity of the plant.

3 The purpose of tonight's meeting is to provide
4 an overview of the draft supplement itself, and also
5 provide the public, you all in attendance here, with
6 another opportunity to ask questions and express your
7 views.

8 Before I get into the agenda and the
9 viewgraphs, I think that it would be good to introduce
10 some of the people from the NRC and associates that are
11 here with me to help make the meeting work.

12 I think first to my left I'll introduce Fred
13 Hebdon. He's from the NRC and is responsible for managing
14 the licensing review by the NRC of the Watts Bar Plant;
15 and to his left is Peter Tamby, the project manager for
16 the licensing review effort;

17 To my right over here, to my far right is
18 Frank Akstulewicz next to Scott Flanders from the NRC, and
19 they're responsible for managing this environmental review
20 that we're here to discuss.

21 And then to my immediate right is Becky Harty
22 who I'll be introducing a little later. She's from the
23 Pacific Northwest Lab, she's the team leader who led the
24 environmental review. A number of her folks are here with
25 her, the physicists, scientists that actually performed

1 the environmental review -- Van Ramsdell, Dale Denham,
2 Susan Blanton, Dr. Charlie Brandt, and Dr. Bert Cushing,
3 specialists who worked on the actual environmental review
4 are here with us tonight.

5 A few other things before we get into the
6 meeting.

7 I thought it would be appropriate to mention
8 the issue of scoping. Some of you may or may not know
9 what a scoping meeting is, but in any event, a number of
10 people at the last meeting, and also a number of people
11 since the meeting wrote and expressed the need for a
12 formal scoping meeting for conducting this review.

13 We responded to each of those letters and
14 stated our position with regard to a scoping meeting, and
15 although we decided not to have a formal scoping process
16 or meeting as part of our efforts to perform this review,
17 I explained that we did decide to hold the meeting in
18 September, and, of course come here this evening and
19 conduct the comment process to receive public input.

20 So, tonight's meeting will give you the
21 opportunity to hear an overview of the supplement from the
22 staff, to ask questions and provide comments on the draft
23 should you choose to do so tonight.

24 I anticipate a presentation of about thirty,
25 maybe 45 minutes. to ensure that we get through all the

1 material, I think I would request that you hold your
2 questions until the presentations are completed.

3 As I said previously, you should have been
4 asked to sign the comment list before you came in, and
5 we'll see how that looks after the presentation.

6 Tonight's meeting is being transcribed, as you
7 can see. The purpose of this is to help us provide a
8 record of comments that come up the meeting.

9 As I said, if you don't have copies of the
10 slides, they are in the back of the room. And if we run
11 out, if you don't have a copy and would like them, you can
12 leave us your name and address, and we will make sure you
13 get a copy of the presentation material.

14 Any comments received tonight will be addressed
15 in the final supplement that should be completed by about
16 March to the extent that we can. I mean that's really the
17 major purpose in addition to explaining to you what we did
18 is to get your input should you desire to provide it
19 either verbally tonight, but I would encourage you if you
20 want to leave written comments with us tonight that would
21 be fine, and I'll also give you an address here tonight --
22 it's actually provided in your material there -- for how
23 you can provide written comments directly to the NRC, and
24 I would encourage you to do that if you desire to do so.

25 I'm going to go through again a little bit on

1 the meeting purpose, background, how we did the review.

2 I'm going to talk briefly about severe accident
3 mitigation design alternatives, analysis. I'll explain
4 that to you, and get into the meat of the presentation.

5 Becky Harty to my right will talk about the
6 major elements of the supplement itself, and then of
7 course questions and answers.

8 Whenever I talk about what the NRC has to do
9 and the laws we must comply with, I fill viewgraphs and
10 with numbers and abbreviations that may be difficult to
11 understand -- I apologize for that, but basically what you
12 see on this viewgraph is the point that the NRC must
13 comply with the National Environmental Policy Act, and
14 here I tell you how we do that, and provide a little bit
15 of history.

16 The National Environmental Policy Act called
17 NEPA requires all federal agencies like the NRC to
18 consider the effects on the environment before taking a
19 major federal action, and of course the action here is the
20 licensing of a nuclear power plant.

21 The final environmental statement, FES, related
22 to the construction and operation of Watts Bar was issued
23 in 1972.

24 The NRC issued an FES related to the operation
25 of Watts Bar six years later in 1978 which supplemented

1 the statements described in the 1972 FES. So the
2 supplement we're describing tonight has the purpose of
3 updating the 1978 FES.

4 This slide summarizes what the NRC must do in
5 the case like Watts Bar, and it's really a quote from our
6 regulations. That's what the first reference there is, 10
7 CFR 51.92.

8 51.92 requires the NRC to supplement a final
9 environmental statement if the proposed action -- as I
10 said, licensing of a nuclear power plant -- has not been
11 taken yet, and (1) there are substantial changes in the
12 proposed action that are relevant, or (2) there are
13 significant new circumstances or information relevant to
14 environmental concerns and bearing on the proposed action
15 or its impacts.

16 Importantly under this same regulation the NRC
17 can prepare a supplement when in its opinion the
18 preparation of a supplement will further the purposes of
19 NEPA, to quote out of the regulation.

20 What that really means I think is furthering
21 the purposes of NEPA really means does it make sense to
22 disclose the information to the public and solicit public
23 input.

24 As I said, here in September we decided to do a
25 rather extensive review of the environment around the

1 Watts Bar plant. We were assisted by Pacific Northwest
2 Lab in performing that review, and here on this viewgraph
3 I've listed some of the areas, or the major areas from the
4 supplement.

5 In a few minutes Becky Harty, the P&L team
6 leader, will describe in more detail how each of these
7 topics are addressed in the supplement, but before she
8 does that I'm going to cover the last bullet called severe
9 accident mitigation design alternatives.

10 I realize I missed a slide there. I'm sorry.

11 This slide explains really the rationale for
12 why we decided to do the supplement, which I had stated
13 out of order on the next viewgraph, but I think it's worth
14 making sure we cover this.

15 In the case of Watts Bar we knew that quite a
16 bit of time had passed since the 1978 FES had been
17 completed, and that's what I told you here in September,
18 so it's primarily for this reason the NRC initiated the
19 review to determine the necessity of the supplement.
20 Given that time, we initiated a review.

21 After initiating the review, we still didn't
22 identify any substantial changes to the action like I had
23 talked about before, or significant new circumstances or
24 environmental concerns. That's important.

25 But it was our judgment that still the

1 preparation of the supplement would further the purposes
2 of NEPA. It seemed to make sense to us that considering
3 this extensive period of time that had gone by, and also
4 the interest here around the plant in the public, led us
5 to conclude that issuing the supplement for comment was
6 the thing to do.

7 One point here I wanted to mention because it's
8 part of the NRC review -- we won't go into it I don't
9 think in too much detail tonight, if at all -- but the NRC
10 is consulting with the U.S. Fish & Wildlife Service
11 regarding the endangered species found in the vicinity of
12 the plant. That's required by law, the Endangered Species
13 Act, and it's a separate part of our review.

14 That's all I plan to say on background and
15 really how we decided to conduct this review.

16 Now from here on we want to get into the
17 description of some of the things that we did, and what we
18 found.

19 Evaluation of severe accident mitigation design
20 alternatives, frequently called SAMDAs. The purpose of
21 this evaluation as stated on the viewgraph is to ensure
22 that plant design changes that have a potential for
23 improving safety, or severe accident safety performance,
24 are identified and evaluated.

25 Severe accidents are really very unlikely

1 sequences that can be postulated at a plant, unlikely
2 sequences of failures that could potentially lead to
3 radiation release, and so what the purpose of this
4 evaluation is to look at design changes that could further
5 improve safety and guard against those sorts of
6 situations.

7 I describe here the evaluation approach in
8 general, which means characterizing the overall plant risk
9 by building rather complex models, and then considering
10 all the different design improvements that could further
11 improve safety or reduce the risk, and then do a
12 quantitative risk reduction potential by evaluating those
13 design alternatives, and then of course looking at the
14 cost of each of those alternatives or improvements.

15 After the alternatives and the cost have been
16 identified, a determination is made as to whether the
17 design improvement appears to be justified.

18 A consideration of the risk reduction versus
19 the cost is made, and the methodologies for how that is
20 done are described in some detail in the draft. I don't
21 plan on going into that here in this presentation.

22 I do want to mention the nature of the
23 conclusions of the review, and that's what's on the next
24 viewgraph.

25 The conclusions, or what were the results?

1 Three improvements to operating procedures as a result of
 2 this review will be implemented before start-up of Watts
 3 Bar. These procedures are described in some detail in the
 4 supplement, but in general what was found that additional
 5 improvements could be made with respect to providing
 6 cooling to the reactor in very unlikely situations, as
 7 well as providing backup electric power capability.
 8 There's two procedures involving electric power
 9 provisions.

10 There were a number of other enhancements
 11 considered, many other enhancements considered. Five were
 12 evaluated in some detail because of their importance, and
 13 because they were judged to be near enough that they
 14 needed to be looked at quite closely, and in fact one I
 15 mention here on this viewgraph has to do with the cooling
 16 of reactor coolant pump seals because of their importance,
 17 and a loss of cooling could lead to a loss of cooling to
 18 the reactor.

19 This study, as well as many studies, has
 20 pointed out that that issue needs to be looked at closely
 21 at all plants, not just Watts Bar, which is being done by
 22 the NRC.

23 There are improvements that could potentially
 24 be made in that area with respect to seal materials,
 25 cooling of the seals, et cetera, but as this viewgraph

1 says, they're being looked at generically.

2 None of the remaining design improvements were
3 really that close here we know within approximately a
4 factor of ten of being cost-beneficial using the
5 quantitative analysis.

6 So the conclusion of my brief remarks on SAMDA
7 is that additional plant improvements to further mitigate
8 the severe accidents, or as I would not use that jargon
9 term, but to improve safety beyond the three procedural
10 changes which I briefly mentioned are judged to be
11 necessary at Watts Bar, and that's explained in the
12 supplement.

13 You can see in your handout that this is the
14 point where we put the address in case you want to provide
15 written comments on the supplement to the NRC we would
16 welcome them.

17 At this point I want to continue the
18 presentation by turning the podium here over to Ms. Hardy,
19 the P&L team leader.

20 I'll just mention before she gets up here that
21 she's lead review teams like this before, which is a major
22 reason why we selected her expertise and the folks from
23 P&L. She is a senior research scientist
24 at P&L, and has done considerable work in the area of
25 radiation dose estimates, evaluation of environmental

1 impacts around Three Mile Island, and has done work in the
2 area of fetal reproductive health hazards, and we are glad
3 to have her lead this time.

4 So without further do, Becky.

5 MS. HARTY: Before I start I just want to make
6 sure everyone can hear me. I'm suffering from a cold, so
7 I don't hear the feedback very well, so if you can't hear
8 me in the back row, be sure to raise your hand. Okay?

9 The purpose of this presentation is to provide
10 you with an overall view of the supplemental environmental
11 statement that was published as a draft report for your
12 comment.

13 This document was written to supplement the
14 NRC's 1978 final environmental statement which I will
15 refer to as the FES.

16 During the presentation I will discuss the
17 process that was used to identify and evaluate the changes
18 that have occurred in the sixteen years since the FES was
19 published. I will describe the results, and I will
20 present our conclusions.

21 In order to identify and evaluate the changes
22 that were made in the last sixteen years, it was necessary
23 to review the FES, and also additional information that
24 was generated in the last sixteen years.

25 As a result of our review, we came up with a

1 list of additional questions and a list of additional
2 documents that we wanted to review, and we received the
3 responses to our questions in writing from TVA, and we
4 also received the documents.

5 Then in September of this last year we visited
6 the Watts Bar nuclear plant site, and we were provided
7 with the opportunity to take a tour of the place,
8 including the meteorological center and the radioactive
9 waste facilities. We were also able to take a boat out on
10 the Tennessee River to look at the locations of the mussel
11 beds, and our terrestrial ecologist took a helicopter ride
12 along the power transmission line corridors.

13 Following the site visits we had additional
14 questions and requests for information, and again we were
15 provided responses from TVA.

16 Because the purpose of the supplement is to
17 update the FES, the table of contents in the supplement is
18 similar to the one that's in the FES, and I show the table
19 of contents for the supplement here.

20 The way the document is organized, Chapters 2
21 and 3 describe the changes that have occurred in the last
22 sixteen years, and then Chapters 4 and 5 discuss the
23 environmental effects and the impacts of those changes.

24 Chapter 6 discusses the environmental
25 monitoring program, which I'll get into briefly later; 7

1 gives the accident analysis; and 8 is the consequences of
2 the proposed action which is operation of the plant.

3 During this presentation, rather than following
4 the general format of the supplement as given in the table
5 of contents, I'm going to start with a description of the
6 changes in the plant since 1978, and then discuss the
7 changes and potential impacts on the environment, then the
8 changes and potential impacts to people, and the
9 environmental monitoring programs, and then I'll end up
10 with the conclusions that we reached.

11 I'll come back to this slide at various times
12 during this presentation so that it makes it easier for
13 you to follow.

14 Before I start, however, I want to show you a
15 map of the area. I know most of you are familiar with
16 this area because you live here, but for those of you who
17 are visiting from outside this might serve for orientation
18 purposes.

19 You can see the location of the Watts Bar plant
20 here in the middle of the state of Tennessee. I have
21 another viewgraph showing a closer view. Here you can see
22 the Watts Bar nuclear plant, there's the Watts Bar steam
23 plant, and this is the Watts Bar dam, so the river is
24 flowing down like this (indicating).

25 The numbers on the viewgraph are Tennessee

1 River miles that run from the mouth of the river up.

2 The red areas I'll talk about later. Those
3 are the locations of the mussel beds.

4 A number of changes have occurred in the plant
5 design and operation since 1978 -- this is the plans for
6 the future operation -- that could affect the aquatic
7 environment, and so that's what we're going to discuss
8 first is the changes in the plant design.

9 There have been changes in the use of the
10 holding ponds that are outside of the plant in the yard
11 area of the site. There are three ponds that were
12 considered at the time of the 1978 FES to be temporary.
13 They are now planned to be retained. There was one that
14 was planned to be continued to be used, but is now planned
15 to be covered up.

16 These changes do not have any significant
17 impact to the environment.

18 There have also been changes to the radioactive
19 waste treatment system and the chemical treatment system.

20 The major change to the radioactive waste
21 treatment system is that TVA will use a demineralizer
22 system to recover radioactive material from the liquids,
23 from the liquid waste, instead of evaporators as they had
24 originally planned.

25 A demineralizer works under the same type of

1 principals that a water filtration system installed in
2 someone's house works. The resins that are used to
3 capture the radioactive material will be disposed of off
4 site.

5 Using the demineralizer gives you a smaller
6 amount of waste that's generated, which in turn gives you
7 fewer shipments to the waste site and, thus, a smaller
8 dose to the public.

9 The site that is currently used is in South
10 Carolina, although in a few years this is going to shift
11 to North Carolina.

12 There have also been some chemicals used in
13 the plant, specifically those used for the steam generator
14 feedwater system, the raw cooling water system, and for
15 component cleaning.

16 This is largely a result of research that
17 shows that there are better ways to treat water that's
18 used by the plant to reduce the corrosion in the pipes, or
19 to control problems caused by lime, or by undesirable
20 aquatic organisms like the Asian clams which are not
21 native to the river, they have been introduced, and these
22 clams have a tendency to get into the intake piping and
23 block it because they keep growing and then attaching to
24 the sides.

25 The chemicals that are used in the plant are

1 regulated by a State of Tennessee permit. This permit has
2 to be renewed every five years, and it controls all liquid
3 releases from the plant.

4 A. In addition to controlling the amount of
5 chemicals to be released, it also requires that there be
6 testing of the liquid releases to ensure that the levels
7 are lower than those required in the permit.

8 It also requires that there be studies of
9 chemical effects on a variety of aquatic organisms.
10 That's to determine how toxic the releases are.

11 The reason for that is while you want to
12 eliminate the Asian clams that cause problems, you don't
13 want to kill the native mussels, because a lot of those
14 are endangered and they're protected.

15 So the toxicity testing is used to show that
16 the concentration of the chemicals that are allowed into
17 the river are lower than the concentrations that would
18 harm aquatic life.

19 Now I would like to discuss changes and
20 potential impacts on the environment, specifically impacts
21 on the use of the river, the aquatic ecology and the
22 terrestrial ecology.

23 We have here a map that shows the area around
24 the Watts Bar nuclear plant, and I put it up here because
25 the original FES that was written in 1978 identified only

1 one river water user downstream from the plant, and that
2 was Dayton, Tennessee.

3 Since then there are three other users of river
4 water that have been identified that are on this side, the
5 north side of the Chickamauga dam, and those are the Soddy
6 Daisy Falling Water Utility District, the Sequoya nuclear
7 plant which is down here near the bottom near the
8 Chickamauga dam, and the U.S. Army Volunteer Ammunition
9 Plant.

10 As far as water quality goes, there have been
11 no changes that are significant since the 1978 FES.

12 The Tennessee River is still considered to be
13 effluent limited, and what that means is that it does not
14 have a high enough, consistently high enough levels of
15 dissolved oxygen to protect fish and other aquatic life.
16 This is due in part to the dams and to the low oxygen
17 levels that are released from reservoirs on the other side
18 of Knoxville.

19 This has been a problem for some time, and was
20 identified in the '78 FES, and it continues to be a
21 problem, and the quality of the water is not expected to
22 change as a result of operation of the Watts Bar plant.

23 The discharge of heat and sanitary waste into
24 the river is covered by the State of Tennessee permit also
25 in much the same way that the chemical wastes are.

1 Because of restrictions in this permit, we
2 don't anticipate any impacts on the surface water supply
3 or the groundwater supply, or river recreational use as a
4 result of discharges of heat, chemicals or sanitary waste.

5

6 There have been three major changes in the
7 aquatic ecology, or in our understanding of the aquatic
8 ecology in the Tennessee River since the 1978 FES.

9 First there was a change in the number of
10 large aquatic plants in the river such as the Eurasian
11 watermilfoil which is also an endangered species. This
12 was expected because of the cyclic nature of this plant,
13 and the operation of the Watts Bar nuclear facility is not
14 expected to have any effect on the population and size of
15 these plants.

16 The second change is not a change so much in
17 the fish population as it is in our understanding of the
18 fish behavior.

19 Previous to 1978 it was thought that the area
20 below the dam was a good spawning area for gamefish. The
21 FES raised the question as to whether or not this was
22 correct. An additional study has shown that it is not a
23 spawning area for gamefish such as the sauger and the
24 bass; they rather spawned down in the Hunter Shoals area
25 which is about six or seven miles south of the plant.

1 The mussel populations have changed, too. Now,
2 there are two types of mollusks, there is the mussels and
3 the clams, and I have briefly discussed the Asian clams,
4 which as I mentioned before are an introduced species.
5 They compete with the native mussels for food and other
6 resources, and because their reproduction is different the
7 introduced species get the edge, they can out-compete the
8 native species.

9 And as I also mentioned, the introduced
10 species tend to clog the intake pipes, and the native
11 mussels do not. They stay down in the river.

12 At the time that the FES was published, the
13 Asian clams were the only nuisance mussel, but since then
14 zebra mussels have also been found in the Tennessee River,
15 although they are still found in small numbers in the
16 Watts Bar Reservoir and in the lock of the dam.

17 The native mussels, we have found changes in
18 the known location and in the listing of the species that
19 are in danger or threatened.

20 New concentrations of mussels have been found
21 on the right shoreline downstream of Yellow Creek, which
22 is a Tennessee River mouth, between 526 and 527 here
23 (indicating). This entire area shown on the
24 viewgraph, the light hatched area of the river, is a
25 mussel sanctuary that had been established in 1965, but in

1 1987 was extended down to River Mile 520, so it's now ten
2 miles long.

3 Samplings of the native mussels in the river
4 have indicated that there's 31 species of mussels, but
5 most of them are adults thirty years or more in age, and
6 we haven't seen any young or juvenile mussels since 1983.
7 The population appears to have been declining since the
8 early 1940s, which is when the Chickamauga and the Watts
9 Bar reservoir were filled.

10 Here I show a list of the threatened and
11 endangered species of mussels. The white ones, the ones
12 in white are the ones that were identified in 1978, and
13 the ones in red are the new ones.

14 In 1978 the FES reported the presence of just
15 two endangered fresh water mussels, the dromedary pearly
16 mussel and the pick mucket.

17 Since then, two additional species were
18 granted endangered status by the Fish & Wildlife Service
19 and by the State of Tennessee. That's the fanshell and
20 the rough pigtoe, and the Tennessee clubshell and the
21 pyramid pigtoe have been given candidate status by the
22 U.S. Fish & Wildlife Service. In other words, they are
23 looking at them to decide whether they should be
24 classified as either threatened or endangered.

25 On this slide again you see the snail darter is

1 in white. The snail darter was identified in the 1978 FES
2 as being an endangered species; however, because they have
3 found additional populations of snail darter they have
4 relaxed this status to threatened.

5 The blue sucker is considered threatened by the
6 state, although it's a candidate by the U.S. Fish &
7 Wildlife Service; and the Eastern hellbender which is a
8 rather large salamander is listed by the state as being in
9 need of management, and it's considered by the U.S. Fish &
10 Wildlife Service as a candidate for protection.

11 Now, the potential impacts that the Watts Bar
12 nuclear plant could have on the aquatic environment are
13 shown on this slide. This includes entrainment and
14 impingement of aquatic organisms.

15 Entrainment is when the organisms are smaller
16 than the grid size of the grid that covers the water
17 intake, and what happens is the organisms are sucked right
18 through the grid into the plant.

19 Impingement is when they are larger than the
20 grid size, and the force of the water impinges them, or
21 gets them stuck on the grid.

22 Neither of these appear to be of a significant
23 impact for the river near Watts Bar, and the reason for
24 that is the river is flowing very fast as it comes over
25 the dam there, and the larval fish and the plankton in

1 that area that are smaller than the grid size are not
2 concentrated in that area because they're washed on
3 downstream, and the low intake velocity of the water into
4 the plant is not high enough to cause significant
5 impingement of the larger organisms like the fish.

6 The thermal discharges in the plant are not
7 expected to be different from those anticipated in the
8 FES. Specific limits, as I mentioned earlier, are placed
9 on the heat discharges by the State of Tennessee permit,
10 and this regulates and minimizes any effect from the heat.

11

12 The chemical effects are also regulated by the
13 state permit, and testing, as I mentioned earlier, is
14 performed to ensure that the concentrations released into
15 the river are well below those that would have an effect
16 on the organisms, so we only expect a minimal effect
17 there.

18 And there does not appear to be any potential,
19 we couldn't find any method for the plant to increase the
20 nuisance aquatic organisms like the mussels or the large
21 plants.

22 Now I'm going to move into the terrestrial
23 ecology.

24 The area that we looked at for the terrestrial
25 ecology included the area around the Watts Bar nuclear

1 plant, and also along the 185 miles of power transmission
2 line corridors that carry electricity from the site out to
3 neighboring areas.

4 The major changes that we found are in the
5 designation of the endangered and threatened species. The
6 only endangered species that was identified in 1978 was
7 the bald eagle, you can see that's in white.

8 Since then, the U.S. Fish & Wildlife Service
9 has also classified the gray bat as endangered.

10 The gray bat and the bald eagle occur around
11 the Watts Bar site, and so does the Osprey which is
12 classified as endangered by the state.

13 There are also two hawks and a sparrow that are
14 considered threatened by the State of Tennessee which have
15 not been found around the Watts Bar nuclear site, but have
16 been found within a half mile of the transmission line
17 corridors. It's not expected that operations of these
18 corridors would adversely affect either of these species.

19 Eight species of plants are either listed by
20 the federal government or by the state. Four of them are
21 candidates for protection under the endangered species
22 act, as you can see there.

23 The plants that are listed on this viewgraph
24 are not found in the vicinity of the Watts Bar site, but
25 they do grow within half a mile of the transmission line

1 corridors. Five of them are not expected to be found
2 underneath the power lines because they prefer a forested
3 habitat, but three of them -- the auriculate false
4 foxglove, the tall larkspur and the goldenrod are found in
5 naturally open areas, and they could colonize the area,
6 it's conceivable they could colonize the area underneath
7 the power transmission lines.

8 The concern is that TVA's line maintenance
9 activities could impact these populations. However, TVA
10 has committed to surveying the corridors before they do
11 their applications of herbicides or mowing underneath the
12 corridors, and if these plants are found they would modify
13 their maintenance plans to prevent damage to the plants.

14 There is a list of the factors that we looked
15 at for the terrestrial environment. We looked at the
16 mechanical clearing and herbicide use, as I just
17 mentioned, we looked at erosion, and it was determined to
18 be insignificant from the fly-over of the power
19 transmission lines and actually looking at how much
20 erosion was there, and also from our analysis of the
21 erosion plan.

22 We looked at the potential interaction between
23 the cooling tower and the steam plant cooling. The steam
24 plant hasn't operated for a number of years, but we still
25 wanted to look at it in case the steam plant starts

1 operating again.

2 We looked at the noise levels and found that
3 they were fairly minimal, normally around the order of the
4 amount of noise you would find on the inside of your car,
5 occasionally with noises up to the levels of being on a
6 busy freeway.

7 We looked at the electromagnetic fields around
8 the power transmission lines, and we also looked at the
9 collision of birds with the cooling towers and power
10 lines, and we found that these effects were also
11 insignificant or minimal.

12 Now I would like to address the changes and
13 potential impacts to the people.

14 The demography of this region has changed
15 since the 1978 FES was written. An additional 140,000
16 people have moved or have been born into the area within
17 the fifty-mile radius of the site, and that area is
18 designated by the red line on this viewgraph.

19 However, the increase in numbers of people is
20 mostly located in the urban centers of Knoxville and
21 Chattanooga which are on the edge of the fifty-mile
22 radius.

23 In mid-1994 the total employment at the site,
24 including the operation and construction personnel, was
25 about 4,000 people. It's projected that about 1,800

1 people will be employed in the summer of '95.

2 However, despite the reductions in the number
3 of employees we do not expect significant socioeconomic
4 impacts. Part of the reason is that you have a large job
5 market there, since the construction employees were spread
6 out pretty much through the entire area, fifty-mile
7 radius.

8 Now I would like to get into the radiological
9 impacts.

10 Nuclear power reactors in the U.S. must comply
11 with regulations. There are set limits on the levels of
12 radiation and radionuclide concentrations that can be
13 found in releases from the nuclear plants.

14 Once the plant starts operating, a monitoring
15 program will be required, but before it starts operating
16 in order to estimate the levels that will be released we
17 need to look at what the releases will be, and what doses
18 will be received by people living near the plant.

19 The pathways that we look at, or that were
20 looked at in the FES also, include liquid release pathways
21 where the people would get a radiation dose from eating
22 fish or drinking water, and also airborne release pathways
23 where you would have direct radiation and you would get
24 radiation from breathing air.

25 The doses were determined for both the

1 population within the fifty-mile radius and the maximum
2 individual who spends all his time at a location where he
3 receives the greatest dose from the air, he drinks water
4 straight from the river, eats fish from the river, food
5 that's grown just in that vicinity.

6 Because radiation is everywhere and we are
7 constantly exposed to naturally-occurring radiation from
8 the sun, from the ground, from our food, it's easiest for
9 us to describe the radiation dose from the Watts Bar
10 nuclear plant by comparing it to the radiation dose from
11 natural sources.

12 The radiation that would be released from the
13 Watts Bar nuclear plant would be a small fraction of the
14 radiation dose that's already received from natural
15 sources by persons living in the Watts Bar vicinity, and
16 you can see on this slide that for airborne releases it's
17 less than .002 percent of the annual dose, and for liquid
18 release it's less an .001 percent, which is a small
19 fraction.

20 Another way to make the comparison is to look
21 at the normal incidence of fatal cancer, and then compare
22 it with the additional cancers that you would expect from
23 operation of the Watts Bar nuclear plant.

24 There are two chances in ten -- these numbers
25 are from the American Red Cross -- two chances in ten that

1 a person in the U.S. will die of cancer.

2 If we compare this with the chances of the
3 maximum individual developing cancer as a result of
4 exposure to radiation from the Watts Bar nuclear plant,
5 which is three chances in a million, I want to make a note
6 that that number of three chances in a million is a very
7 conservative estimate.

8 Because of low doses it's hard to designate
9 what somebody is affected by, was it radiation, was it
10 chemical, was a hereditary effect or just genetic, so what
11 we do is we extrapolate from large numbers where we know
12 that at large doses a certain number of people will
13 develop cancer, we have a better estimate of that, and
14 then we just kind of extrapolate the line down to smaller
15 doses.

16 Now, the number of fatal cancers in the off-
17 site population within the fifty-mile radius, and for that
18 we assumed 1.1 million people because that's the
19 population we estimate for the year 2040, which is near
20 the end of operation of this plant.

21 We estimated 220,000 fatal cancers just from
22 the natural incidence of cancer in the area, and we
23 compared that with the incidence resulting from Watts Bar
24 which is less than one, and actually I have the number
25 0.01 up here, which means that there is one chance out of

1 a hundred that a single cancer would be found in that
2 entire 1.1 million population from the effects of the
3 Watts Bar nuclear plant.

4 Now, we have discussed ionizing radiation as
5 one of the factors that we looked at. We also looked at
6 electromagnetic fields and shock hazards and found them to
7 be comparable to other power lines. That's where you
8 would have these hazards.

9 We looked at airborne pathogenic
10 microorganisms such as Legionnaire's disease which are
11 found in moist warm environments. Mostly the concern here
12 was for workers cleaning the cooling towers, and not for
13 the public.

14 We looked at the noise levels, as I mentioned
15 earlier for the terrestrial ecology, and we looked at the
16 air quality, and in all cases we found that these impacts
17 were insignificant.

18 Finally I would like to briefly discuss the
19 environmental monitoring programs. There are two types of
20 programs. There is the pre-operational monitoring
21 program, and the operational.

22 The pre-operational monitoring was initiated
23 in the 1970s to provide data before the start of the
24 plant, and a lot of the reports that we reviewed were
25 reports from the pre-operational monitoring.

1 Areas that were monitored included the
2 meteorological program such as the weather data, the water
3 quality studies, the groundwater studies, aquatic
4 biological monitoring, terrestrial monitoring, and the
5 radiological monitoring.

6 Because there are no releases at the moment,
7 radiological releases from the plant, that was mostly just
8 for base-line data to understand what the background
9 radiation doses in the area are.

10 The operational monitoring program will start
11 when the plant begins operation, and you can see we have
12 the same program with the exception of the chemical
13 monitoring that was not a preoperational program, but will
14 start when the plant starts operation.

15 Now, the 1978 FES concluded that it's possible
16 to operate the Watts Bar nuclear plant with only a minimal
17 environmental impact.

18 The conclusion of our supplement agrees with
19 the conclusion of the FES. Our review of the changes of
20 design of the Watts Bar nuclear plant, the proposed
21 operations, the population and employment in the area, the
22 terrestrial and aquatic environment, all show that there
23 are not any significant changes in the environmental
24 impacts from those that are given in the 1978 FES, and
25 that's the conclusion I would like to leave you with, and

1 I'll turn it over to Scott Newberry.

2 MR. NEWBERRY: Okay. Thank you, Becky.

3 That concludes our prepared presentation. I
4 think you can certainly see from what we shared with you
5 tonight the conclusion, the overall conclusion of the
6 draft is that our look at plant design changes, changes in
7 operation, and changes in the vicinity of the plant, we do
8 not see any significant changes, and that's the conclusion
9 in the draft supplement.

10 I think we have taken a pretty thorough look
11 over the past couple of months at Watts Bar and what's
12 occurred since 1978.

13 At this point I have a number of people here
14 who have indicated that they would like to make a
15 statement, and based on looking at the list with one
16 exception we'll try to accommodate that.

17 That's what I want to do, before we get into
18 the statements I think we want to give you an opportunity
19 to ask questions of clarification or what have you, so
20 let's do that.

21 Identify yourself if you choose, and then go
22 ahead and ask the question. There's a microphone right
23 here.

24 MS. HONICKER: Becky, I want to ask you about
25 the cow milk child pathway.

1 I noticed that you did not mention cow milk
2 child pathway in any of your monitoring, and at the
3 Hartwell nuclear plant, I was an intervenor against that
4 plant, and I have a paper specifically that says that cow
5 milk child pathway is a critical pathway to man, every cow
6 within a fifty-mile radius should be identified, and
7 monitoring should be done. You ignore it completely, the
8 food pathway.

9 The Hartwell plant clearly shows that the
10 effluents will fall on the grass and will be eaten by the
11 cows, and taken up in the milk.

12 Strontium 90 acts like calcium when it is taken
13 into the body, and to ignore that completely is criminal -
14 - there's no other word for it, it's criminal.

15 MS. HARTY: I'm familiar with the cow milk
16 pathway, but I would like to refer this question to Dale
17 Denham because he was the health physicist that actually
18 worked on the radiological impact section and is a little
19 more familiar with this area than I am.

20 MR. DENHAM: Let me just speak to you, I hope
21 you can hear me, and obviously you might have an interest.

22

23 What you have expressed is a concern, but
24 unfortunately what Becky showed, we have taken that into
25 account. That is part of that impact shown for the

1 individual, the maximum individual, that kind of maximum
2 individual that was considered in looking at the impact.

3 MS. HONICKER: Who will monitor the milk?

4 MR. DENHAM: The monitor will be monitoring
5 the milk.

6 MS. HONICKER: How often will the milk be
7 collected? Where will it be collected from? Who will
8 actually do the milk monitoring?

9 MR. DENHAM: If I could just share with you
10 just for a moment the program, I can't describe the
11 program here at the plant in total detail, but in general
12 cows within five miles of a plant, of a nuclear plant, are
13 (1) surveyed annually -- that's a requirement by the NRC
14 that that survey be done by the utility -- and then those
15 animals, not every one of the animals, but I mean selected
16 dairy, the close-in ones are sampled by the plant, and
17 then the milk analyzed.

18 MS. HONICKER: Once a year?

19 MR. DENHAM: No, no. These are done monthly
20 during the season, you know, the season when cattle will
21 be out on the pasture land, and the primary concern -- you
22 shared strontium 90 -- yes, that is a long-term concern,
23 but in general the concern and the impact, the gross
24 impact is coming from iodine 131, short-lived, and AK
25 half-life, and that's where the major concern would be,

1 and that is also factored into the numbers that you saw.

2 MS. HONICKER: I just have one other question
3 before we leave this.

4 I know for the Hartwell plant the guidelines
5 were changed when you calculated the dose. Before the
6 Hartwell plant was designed or the construction permit was
7 granted the guideline 1.42 had been used to calculate the
8 dose.

9 At that time from the Hartwell plant the dose
10 was calculated to be 335 milligrams of iodine to a one-
11 year-old child drinking milk from a cow grazing from that
12 plant.

13 The new revised guidelines which we'll call
14 1.1, or I can't remember the number, but anyone, 1.1
15 milligrams was the result of changing the guidelines with
16 pencil. There was an erasure rather than actually
17 installing equipment.

18 The new guideline was looked at by the
19 University of Heidelberg and was found to underestimate
20 the perimeters by 500-fold.

21 So you can sit here all day long and tell us
22 that it's not going to hurt anybody, it's all
23 calculations, and until it actually operates and you see
24 the corridors that you see in Hanford or in any of these
25 other facilities will you actually be able to say, and

1 then it will be denied.

2 But I think that people need to know that
3 calculations are as accurate as the figures you put in
4 there, and that it can be changed, and it means nothing.

5 (Scattered applause.)

6 MR. NEWBERRY: Ma'am, do you want to identify
7 yourself?

8 MS. HONICKER: I'm Jeanine Honicker.

9 MR. NEWBERRY: Thank you for your comments.
10 Are there any more questions before we get
11 into statements?

12 Ma'am.

13 MS. MORGAN: I'm Dixie Ann Morgan.

14 I just wondered why it's taken so long to
15 build this plant, and because of my own personal
16 background it just seems like the technology would have
17 had to change so many times over the years that I just --
18 could somebody just explain this to me?

19 MR. NEWBERRY: I think I'm going to turn to my
20 left and ask Fred to respond to that, but our focus here
21 was the environmental review.

22 But given you're new to the area, Fred, do you
23 want to just take a couple of minutes?

24 MR. HEBDON: The plant has been under
25 construction for a long period of time, you're certainly

1 correct.

2 The plant was very close to completing
3 construction and close to being ready to operate in 1985,
4 which is almost ten years ago.

5 At that point there were a number of problems
6 identified with the way the plant had been constructed and
7 some of the work that had been done, and TVA has been
8 working since that time to resolve those problems to the
9 satisfaction of the NRC, and they're continuing to work on
10 that, and when they have resolved them, and if they reach
11 the point where they've been resolved to the satisfaction
12 of the NRC, then at that point they would be allowed to
13 operate.

14 But you're right, it has taken a long time.
15 The plant was virtually completed almost ten years ago.

16 MS. MORGAN: Has the technology become
17 upgraded, updated?

18 MR. HEBDON: There have been a lot of changes
19 to the plant, there have been a lot of upgrades to the
20 plant to include more modern technology.

21 For example the reactor protective system
22 which was an older design is much more modern electronics
23 now than was in the plant at the time when the plant was
24 being considered for licensing in 1985.

25 MS. MORGAN: One more.

1 Do you have any idea how much longer or how
2 much it's going to cost? Do you know?

3 MR. HEBDON: It's difficult to determine the
4 cost, because a lot of the cost is a financial interest on
5 the debt that was used to pay for the construction of the
6 plant in the first place.

7 I think TVA would probably be in a better
8 position to comment on that than we would.

9 MR. NEWBERRY: Hang on so everybody else can
10 hear it.

11 Do you want to try that one again, Barry? I
12 think we can get --

13 VOICE: Well, there are a lot of people in
14 Nashville that are real interested in the hearings, and we
15 were hoping to have a hearing in Nashville, because not
16 everybody could come at this particular date.

17 And I'm guessing that the plant is up for
18 licensing, and this is why you're having public input?

19 MR. NEWBERRY: The reason for this meeting is
20 to receive comments on the draft supplement, the
21 environmental review which I talked about.

22 I believe the licensing hearings have been
23 completed and are closed.

24 I don't know.

25 MR. TAMBY: I'm Peter Tamby, NRC Project

1 Manager for Watts Bar.

2 This is not really the topic of today, but
3 since
4 we have people who are interested. I'd like to give you
5 some idea.

6 In 1976 when TVA submitted an application to
7 operate the plant, we did advertise in the Federal
8 Register for opportunity for hearing, and we have gone
9 through that process. There were people who petitioned,
10 and there was no hearing as a result of that.

11 Now, if you need any more detail, we do have
12 our attorney here who can answer this if you are
13 interested. Ann Hodgdon, are you there?

14 MS. HODGDON: I'm here, Peter, but I don't
15 have anything to add to that. There was no time limit --

16 MS. HONICKER: I'm sorry, there was. I have
17 with me the petition that I filed to intervene, it was
18 timely filed, and there was a prehearing conference, and I
19 have the results of that, and my petition to intervene was
20 denied because I was not a scientist or a technician, and
21 the statement was made that the only thing a hearing would
22 do would be delay the plant.

23 There was no hearing -- that was in 1977 --
24 and here you say you hope to operate in 1995.

25 My question is how much would you have saved

1 if you had stopped right then.

2 (Scattered applause.)

3 MR. HEBDON: I wasn't involved with the
4 process at that time, but I know that there are procedures
5 that we followed, and those procedures were followed then,
6 and with the benefit of hindsight whether a different path
7 might have been better, I don't know. I really can't
8 comment on that.

9 MS. HONICKER: I think it was premature, that
10 the plant was not ready to operate, and now is the time to
11 readvertise and reopen it up and let these people who are
12 concerned now have an opportunity to comment.

13 MR. NEWBERRY: I think we are getting a little
14 bit off the subject.

15 The purpose of the meeting was to discuss the
16 environmental impact statement, and there has been quite a
17 bit of discussion over the last couple of years on the
18 issue of hearings, and we have researched it, and I know
19 different people within the area have researched it, and
20 we reviewed what was supposed to be done by the procedures
21 of the NRC, and I think that's probably a subject that
22 would be best for a different discussion, because we're
23 trying to give people an opportunity to review the
24 information that we developed as part of our review of the
25 environmental statement.

1 VOICE: It seems like they should have an
2 opportunity also. If we could talk about it another time,
3 maybe we could set up another meeting where we can talk
4 about it, because this is the only point we can talk about
5 it.

6 MR. NEWBERRY: There's a lot of hands up here.
7 I'll get to you in a minute.

8 I think we got the gist of your concerns, very
9 clear concerns on the hearing process, and being
10 responsible for the environmental review we can take
11 those, but they are clearly outside the scope of this
12 meeting.

13 I'm here to manage and ensure that we get your
14 input on the environmental review, and I seriously can't
15 make a commitment with respect to the hearing process and
16 those issues.

17 I acknowledge them, and we'll take them back,
18 and I think I would just like to move on now to see if
19 there's any questions with respect to the presentation or
20 the draft supplement with respect to environmental
21 matters.

22 Just a second. The lady was first here.

23 MS. BALDRY: My name is Heather Baldry, and I
24 was just wondering how many of your statistics concerning
25 the exposure to radiation and health concerns took into

1 account a catastrophic accident at Watts Bar.

2 MR. NEWBERRY: The term "catastrophic
3 accident,"

4 I think what you mean there is the term I used which was
5 "severe accident." The consequences of a severe accident
6 could potentially if you postulate failure on failure be
7 catastrophic. They are extremely unlikely.

8 That study was -- that was explicitly
9 considered, that was the intent of the study to look at
10 those sorts of situations to see if any additional design
11 or procedural changes should be made to further reduce the
12 likelihood of those events, or even if they should occur
13 to reduce the consequences of the events.

14 Does that answer your question?

15 MS. BALDRY: I still don't have an answer to
16 my question. According to the NRC how probable is that?
17 because I've read some of the NRC reports, and I know that
18 they think that the NRC foresees that to be more possible
19 at Watts Bar than most other nuclear facilities.

20 MR. NEWBERRY: The initial studies -- and I
21 know we received some letters on this, and I think it's
22 clarified in the report, but let me try to answer your
23 question, then Mr. Palla can help me out if you need more
24 -- but the initial studies that were done to look at the
25 likelihood of those accidents indicated that the

1 likelihood at Watts Bar was higher than what you would
2 expect from the studies of the other plants, that's true.

3 Two points on that. That's not unusual for
4 preliminary studies which make first order assumptions
5 before you look at the plant closer.

6 A closer look reduced the estimate and brought
7 it in range with the other plants in the United States,
8 and the modifications I was talking about further brought
9 it in the range with the other plants.

10 We have looked at that, and Watts Bar is that
11 I would call in line with the estimates for those sorts of
12 accidents, which are very low.

13 Yes, ma'am.

14 VOICE: In case of one, what are your
15 evacuation plans for Knoxville and Chattanooga?

16 MR. HEBDON: I know emergency planning is an
17 area that's addressed as part of the review.
18 Unfortunately I'm not an expert in that area, and we don't
19 have experts in that area with us because it's really
20 outside the scope of the environmental review which is
21 what we're trying to discuss.

22 But there are plans that are developed by the
23 licensee, there are rules as to how those plans work, and
24 those plans have to be in place and tested before the
25 plant can operate.

1 MR. NEWBERRY: Before we leave, I want to see
2 if we can get you a better answer to that question. Maybe
3 there's somebody here that can answer it. I cannot.

4 MR. TAMBY: As far as emergency preparedness
5 is concerned, we have a very detailed safety evaluation
6 based on TVA's also very, very detailed emergency plan
7 that was submitted to us, and we have reviewed that; we
8 have documented our review results.

9 If you leave me your name and address, I'll be
10 happy to send you a copy of our evaluation. I believe
11 that will answer all of your questions.

12 But like Fred said, tonight we do not have any
13 emergency preparedness experts here to answer your
14 questions.

15 MS. HONICKER: Would that be part of the
16 environmental control?

17 MR. TAMBY: It's what we normally classify as
18 safety evaluation, and we are not prepared to answer it,
19 but we do have that information. It's a voluminous amount
20 of information, including evacuation.

21 So if you will give me your name and address
22 after the meeting, I will be happy to send you that
23 information.

24 MR. NEWBERRY: I'm going to get to you.

25 I have requests for about -- my estimate is

1 twenty to thirty minutes of comments. I want to keep
2 going on questions for a little bit more, but I do want to
3 try to adjourn by nine, so just let's keep going with
4 questions, a show of hands.

5 I have been cautioned if you would to identify
6 yourself before you ask a question.

7 Yes, sir.

8 MR. CLAYTON: My name is Ron Clayton with the
9 Free Press, Chattanooga.

10 You had mentioned that the state will be
11 monitoring some of the chemical aspects and so on and so
12 forth of the plant.

13 I was wondering what department will do that,
14 and judging from some of the state's past decisions
15 regarding landfills are there any safeguards in place that
16 will ensure their findings will be truthful?

17 MS. HARTY: Let me take the second part first.

18 As far as the landfills go, Watts Bar nuclear
19 plant has its own landfill -- okay -- so that's not
20 handled at a landfill off site.

21 This is a copy of the permit here by the State
22 of Tennessee, and it's issued by the Division of Water
23 Pollution Control, and it's actually called the National
24 Pollution Discharge Elimination System.

25 Does that answer your question?

1 MR. CLAYTON: Not really. I was wondering if
2 it fell under the Department of Solid Waste Management.
3 That's what I was wondering.

4 MS. HARTY: No. It's under the Division of
5 Water Pollution.

6 MR. NEWBERRY: You were first, I think. We'll
7 get you both.

8 COWAN: I was wondering -- my name is Ruth
9 Cowan -- and I was concerned about what exactly is a
10 minimal impact to our ecology, considering that we have
11 already made so many impacts on our streams and rivers by
12 damming them.

13 I'm also concerned about what is the minimal
14 dosage for a baby. Is it measured for adults, or
15 children?

16 MS. HARTY: When we talk about minimal impact,
17 or insignificant impact, it's hard to actually quantify
18 those terms.

19 What we looked at was an impact that would not
20 be seen in the arena that we were discussing.

21 For instance, if we talked about an impact to
22 the mussels, it's not something that we could go out and
23 measure and say that yes, there was, or there was not an
24 impact. It just would disappear in the noise of the
25 situation. Does that make sense to you?

1 MS. COWAN: That makes sense, but I can
2 understand that it may not be able to be measured, but I
3 also understand that as scientists we try to measure
4 things like that, and I think that there should be a way
5 to say "Well, this many mussels are going to die."

6 MS. HARTY: That's right, as scientists we do
7 try to measure the impact, but it's like if you put one or
8 two grains of dust in this room it would be basically
9 impossible to measure with the equipment that we now have,
10 compared to all the other grains of dust in the room.
11 It's that kind of idea.

12 Your second question I'm a little unclear as
13 to what you were asking. You were asking about the
14 minimal dose to infants?

15 MS. COWAN: The allowable dose to infants.
16 What is the allowable dose, and would an infant exceed it
17 in their lifetime?

18 MS. HARTY: Infants are not -- there's not a
19 separate dose to infants than there is to the average
20 person in the population. It's just given as one dose.

21 There is a dose -- and I'm not sure if this is
22 what you're thinking of -- for radiation workers they
23 assign a specific dose. They assign another dose to
24 radiation workers who are pregnant, or who have declared
25 that they are pregnant. That's the only difference in the

1 dose to an infant or to a child.

2 Dale, do you want to address the limits that
3 there are for the off-site population?

4 You're talking about the limits, not what's
5 going to happen as a result of Watts Bar; correct? The
6 limits that are set by the NRC?

7 MS. COWAN: I was concerned about the limits
8 to the general public and the impact of Watts Bar to the
9 general public.

10 MR. HEBDON: Let me see if I can help just a
11 little.

12 There are limits that the NRC has set on
13 exposure to members of the general population, and they're
14 small, but then there are also the amounts of exposure
15 that would result from the operation of Watts Bar, and
16 that's even smaller by probably about three orders of
17 magnitude.

18 Are you referring to the limits that are set?
19 There are specific numbers, and I think we can probably
20 get those for you.

21 MS. COWAN: I was concerned about the ratios
22 of the two limits, the limit to the general population and
23 the allowable dosage to --

24 MS. HARTY: Table 5.1 in the report provides a
25 list of the limits, and actually what they give here are

1 the design objectives for when they designed the plant,
2 and they vary depending on what pathway you're looking at.

3 And then in Tables 5.2 and 5.3 there's a
4 comparison of the releases that you would expect from
5 those releases. Do you want to add to that at all, Dale?

6 5.12, 5.13 and 5.14. Do you want to add to
7 that, Dale, at all?

8 Do you want me to run through them for the
9 record, or --?

10 MS. COWAN: That's okay.

11 MS. HARTY: All right.

12 VOICE: I'm a student at U.T. Knoxville, and
13 I'm concerned about the transportation of waste, and I was
14 wondering if that was taken into account in the report.

15 And also the waste is going to be around for
16 thousands of years, and is that taken into account that
17 people are not just going to be affected today and
18 tomorrow, but for, you know, the half-life I don't even
19 remember, but it's going to be way past when I'm dead.

20 MS. HARTY: The doses resulting from the
21 transport of the waste to the waste repository was
22 accounted for in the report.

23 Once it's at the waste repository, it's no
24 longer considered to be an impact from the Watts Bar
25 nuclear plant, but it's considered to be an impact of the

1 waste repository, so that was not accounted for in this
2 supplement.

3 VOICE: What about accidents of
4 transportation?

5 MS. HARTY: I don't think we addressed the
6 accidents of transportation in this report.

7 They were addressed in the FES, weren't they?
8 and there weren't any changes from the FES impact, so it
9 was not addressed in further detail in here.

10 You would have to refer to the 1978 FES.

11 PAT: Okay. My name is Pat.

12 Okay. Along the lines of that gentleman's
13 question, what about the mining of the uranium and the
14 processing of the uranium, and the tailings of the uranium
15 to the people who still live in those areas? Whose
16 responsibility is that? I mean I guess I'm addressing the
17 question towards your answer to the last question.

18 MR. NEWBERRY: Let me just put one thing in
19 perspective here.

20 The way we looked at this, Pat, was the FES was
21 completed in 1978, and we concentrated on changes to the
22 plant, the way the plant was operated, the plant design or
23 the environment that occurred since 1978. There were no
24 changes in that and many other areas as far as we are
25 aware of.

1 In terms of the scope --

2 PAT: Therefore the numbers are much higher
3 about, you know, people actually involved with the
4 radioactive material which will eventually and would
5 produce energy at Watts Bar. The total amount of
6 radiation is much larger than the amount of radiation
7 you're actually looking at, because it's spread out.

8 MS. HARTY: The only thing that was really
9 addressed in the FES and in the supplement was the fact
10 that the uranium would be used, and it was a resource that
11 was -- how do you say, nonretrievable -- and so we had to
12 look at that. It's not recycled.

13 However, the rest of your -- let me check one
14 thing in here real quick --

15 VOICE: While you're looking, about the milk
16 pathway, I know there was at least one situation where
17 around some sort of nuclear facility the cows were just
18 taken away and new cows were brought in. And I mean I'm
19 sure that some people in this room are aware of that
20 incident, but that has been done.

21 I'm not saying that whoever is running Watts
22 Bar would be corrupt enough to do that kind of thing, but
23 it has happened.

24 MS. HARTY: I'm not familiar with that.

25 Back to your previous question, there is a

1 table in the original FES, in the 1978 FES which is a
2 summary of environmental considerations for the uranium
3 fuel cycle, and it also -- it's Table 5.10.

4 For the most part, however, the impacts as far
5 as doses from facilities that mine and mill are part of
6 their environmental statement as opposed to the
7 environmental statement for this plant.

8 You would kind of have to dig all these
9 environmental statements out from the different locations.
10

11 Pardon?

12 VOICE: Nobody adds all that up?

13 MS. HARTY: They do to some extent in the sup,
14 yes. For instance, they talk about the number of curies
15 that would be released during mining, and milling, and the
16 radon doses. They don't go into a lot of detail. They
17 did come up with some population doses that I mentioned,
18 but it's not in the detail that you have for the rest of
19 the report.

20 MS. HONICKER: May I respond to that statement?

21 The memorandum came out shortly after the
22 Hartwell Nuclear Plant hearings, and it was said -- Dr.
23 Walter Jordan was a retired director of the Oak Ridge
24 National Laboratory so that you'll know that he's not an
25 anti-nuclear activist -- he said that the radiation

1 released from radon from the uranium required to fuel a
2 single reactor for a single year can run into the
3 hundreds.

4 Luke Adams (?), who was the congressman from
5 the Nashville district had some correspondence with Dr.
6 Jordan, and that was quantified to be 400. That's not 400
7 deaths today and tomorrow, but 400 deaths over the long
8 term from the radiation released from the radon from the
9 uranium required to fuel a single reactor for one year.

10 MR. NEWBERRY: I think we can do a better job
11 than that in the final. We have your comment here, we'll
12 do something with that. Thank you.

13 MR. IRWIN: My name is Chris Irwin, and I'd
14 like to jump back to something the woman brought up
15 previously about the initial studies showing that Watts
16 Bar was more likely than most facilities to blow the hell
17 up, and the response was that it was found that it was as
18 likely as the other facilities, and that response didn't
19 particularly assure me or make me feel any better that
20 it's as likely as any of the other ones to go.

21 As for the evacuation plan, you'll get back to
22 us in a couple of days by mail. What if it blows up and
23 we have fifteen minutes to get out? Are you going to get
24 back to us by mail afterwards?

25 MR. NEWBERRY: Two questions. The first

1 question, I did say that the estimates for the likelihood
2 of an accident at Watts Bar were in the range of the other
3 plants, and I also said they were very low. The
4 quantitative estimates are in the report.

5 I didn't hear all of your question with respect
6 to the emergency planning.

7 MR. IRWIN: The evacuation plan. You can't
8 present us with one tonight, apparently you'll put it in
9 the mail for her and she'll receive it in a few days or a
10 few weeks.

11 Well, if the plant does happen to go up
12 tomorrow and I have fifteen minutes to get out, may I have
13 your phone number?

14 MR. NEWBERRY: Okay. Any other questions?
15 Yes, sir.

16 MR. HEBDON: The other gentleman had the
17 question on the emergency plan. If you're interested, we
18 can get the information to you also, but understand the
19 plant is not operating yet.

20 MR. IRWIN: When it does --

21 MR. HEBDON: I mean we can get the information
22 to you within a few weeks of today, and the plant is not
23 going to operate within a few weeks from today, so the
24 information would be to you before the plant would
25 operate.

1 MS. HONICKER: Does it say where each person
2 is supposed to go?

3 MR. TAMBY: Regarding emergency preparedness,
4 in the voluminous amount of information that we do have,
5 those residents that are within the vicinity of the plant
6 will be given information about evacuation, about
7 emergency planning, et cetera. They don't have to wait.

8 Now, offhand since I'm not an expert on that I
9 don't want to just arbitrarily answer your question, but I
10 know that the plan is there and that at the right time the
11 information will be given to the residents in the
12 vicinity.

13 I'm not trying to be evasive, it's just that
14 tonight we are not prepared to answer that, and I don't
15 have that information. We don't have an expert to answer
16 that question.

17 Meanwhile the plant is not operating.
18 Tomorrow it's not going to have an accident, it's not
19 going to have a nuclear accident.

20 VOICE: Is uranium on site right now at Watts
21 Bar?

22 VOICE: Yes.

23 VOICE: Could there potentially be an accident
24 right now because of the uranium at Watts Bar?

25 MR. NEWBERRY: Just a moment.

1 MR. TAMBY: The nuclear fuel has been on site
2 since the eighties, 1980. However, since the fuel has not
3 been irradiated and is not being used there is no fission
4 product in the fuel, so it cannot cause a nuclear accident
5 like the kind that you have in mind.

6 The plant is not operating, the fuel is not in
7 a configuration where it can reach what we call
8 criticality, so the fuel is very safe.

9 MR. NEWBERRY: Okay. The last question, and
10 then I want to move into the people that have requested to
11 make statements. There's quite a bit of --

12 Yes, ma'am.

13 MS. HINES: This is not a question, this is a
14 statement.

15 To say that the plant isn't responsible if
16 it's in storage to me seems a complete abrogation of
17 responsibility. That's like saying to me the
18 advertisements that say don't blame the thief if you leave
19 your car unlocked, or it's not really the cigarettes that
20 cause your lung cancer, it's the smoke that is in your
21 lungs, the cigarette is not responsible.

22 I'm Becky Hines from Brentwood, Tennessee.

23 MR. NEWBERRY: Thank you.

24 I want to move on to the folks that have
25 requested some time here to make comments. Maybe we have

1 heard from them already, but I'll go down the list.
2 There's eight individuals that wanted to say something
3 here, and we'll get to use the microphone and you can make
4 your comment into the record.

5 I should say, John, it looks like you didn't
6 have a chance to sign the list, and I'll bet you're going
7 to request a few minutes; is that correct?

8 JOHN: Yes.

9 MR. NEWBERRY: People have requested between
10 one minute and two weeks for their comments here, and I
11 would like to request that you try to limit yourself to a
12 few minutes, please, and I'll try to help you do that.

13 Michael McKinney was the first person. Could
14 you raise your hand?

15 MR. MCKINNEY: I'm Michael McKinney, I'm
16 Associate Professor of Ecology and Geology at the
17 University of Tennessee. I teach ecology and geology at
18 the University of Tennessee, I teach conservation biology,
19 and I have written a number of articles and books on
20 extinctions and the topic of environmental science.

21 My basic statement is that I've read this
22 review quite thoroughly on the biotic impacts, the aquatic
23 biological impacts, and I remain very skeptical.

24 I do think you've done a really good job, I
25 think you're really serious about it, but I have a lot of

1 questions. I think some of the tests you've done don't
2 stand up to close scrutiny when you look at the
3 environmental science of what goes on.

4 I want to focus on the mussels because mussels
5 are what we call indicator species, they indicate the
6 health of the aquatic system, they tell us what's going
7 on, and as a lot of people here probably know the mussels
8 in the Tennessee River are very, very sick, they have been
9 sick for a long time, and they're in rapid decline. I
10 think the report mentions that they've gone from 64
11 species to 28, or something like that.

12 Admittedly that's not the fault of Watts Bar,
13 that's mainly from the dams, but to some extent the logic
14 seems to be that "Well, since these things are sick and in
15 decline, let's kind of forget about them."

16 The message I get when you talk about the fact
17 that these are non-reproducing populations seems to be
18 "Well, they're goners, so we can't do anything about it."

19 To that I would like to make the statement
20 that there is a new science of restoration ecology where
21 you can transplant populations. It's being done in
22 Nashville right now.

23 I don't see why some of these -- and I want to
24 mention the number -- there are six endangered species or
25 candidates -- why some of these six species can't be

1 transplanted, or at least that could be looked at.

2 So the idea that these are so-called living
3 dead as we call them in conservation biology, "Let's write
4 them off and forget about them," that seems very tenuous
5 to me, and I'd like to say that.

6 The other point that bothers me is where you
7 conclude that the plant operation will have no significant
8 impact.

9 Specifically you talk about putting heavy
10 metals, thermal effluents and so on. Again I understand
11 the necessity of doing this and mitigating factors. I
12 would like to mention, though, that the Endangered Species
13 Act does say, it's the law that you need to set aside
14 critical habitat. I realize you can't do that because
15 this plant is there, but again when you're putting
16 molluskicides into the water which are supposed to kill
17 mollusks, I find it rather surprising that it wouldn't
18 kill some of the endangered species which are mollusks,
19 the clams.

20 I would also mention I've done some scientific
21 research and looked at the literature, and there are
22 studies that show that some of the molluskicides named do
23 have an impact on native clams.

24 This was supposed to be covered by the
25 toxicity testing. You used two species of clams, you used

1 juveniles which is good -- I agree, I think that's a
2 really good thing
3 -- my kind of statement or comment here is that
4 unfortunately neither one of these species belonged to
5 even the genus of the six endangered species, and it's one
6 of the primary rules of toxicology that when you perform
7 toxicological testing you have to worry about species-
8 specific effects.

9 In other words, two closely-related species
10 may react very differently, even if they're in the same
11 genus, to certain toxicity tests.

12 Here you're using test critters that are not
13 even in the same genus, so I would suggest that those test
14 results really don't extrapolate very well, certainly
15 don't lead to the conclusion that these molluskicides will
16 have no impact on the native clams. I just don't see it,
17 it's just not in the toxicological principles.

18 I guess that's all I've got to say.

19 MR. NEWBERRY: Thank you for that comment.

20 I think I want to move on here to -- is it
21 Daniele?

22 DANIELE: Can I come up there since I have
23 papers?

24 MR. NEWBERRY: Sure, you can come up here.
25 You requested fifteen minutes. I would appreciate it if

1 you could do about five, and then we'll let some other
2 people have the floor.

3 DANIELE: I would like to just quickly address
4 the fact that the people here are trying to address issues
5 that are outside the purview of the environmental impact
6 statement.

7 I think that part of the reason that we have
8 been attempting to get a hearing such as the one this
9 evening is because the last time the public even had an
10 opportunity to comment on this plant was in 1978, and I
11 think that that really has been ignored by the Nuclear
12 Regulatory Commission more than it should be.

13 I realize that the people here tonight are
14 addressing a specific focus, but I think that people here
15 want to address the plant and where things are going with
16 this plant, because since 1978 there has been enormous
17 changes at this plant.

18 There have been stop work orders, they have
19 stopped the construction at this plant. There has been
20 enormous changes inside the facilities or the structures,
21 the systems components are radically different, and all
22 we're talking about is how the environmental impact and
23 what's being discharged in the air, and we're talking
24 about a plant here, and I think that the -- I think people
25 are basically asking for a reopening of the construction

1 permit, and I recognize that legally the NRC isn't going
2 to allow that, but I think the public is warranted to ask
3 that that happen.

4 There's a couple of broad areas that I think
5 that were not addressed in the environmental impact
6 statement that I would like to address right now, and
7 specifically I would like to look at SAMDA which is the
8 Severe Accident Mitigation Design Alternative.

9 Basically I think the most important problem
10 here is that the cost-effective risk reduction measures
11 are no longer valid. There exists a very real possibility
12 that additional cost-beneficial risk reduction can be
13 identified.

14 The circumstances result as a result on an
15 announcement that TVA made that they're going to cancel
16 Unit 2 at Watts Bar, and this cancellation means that
17 Unit 2 systems can be used to support Unit 1 response,
18 potential severe accident initiating events, and thereby
19 reduce the severe accident frequency.

20 And I think that it's enough that, you know,
21 while we don't know necessarily which systems in Unit 2
22 that could support Unit 1, I think that it's enough at
23 this stage to observe the potential for using Unit 2
24 systems to reduce the risk at Unit 1 has not been explored
25 by the TVA or the Nuclear Regulatory Commission.

1 The viability of such changes depends entirely
2 on the degree of the completion of Unit 2, and the
3 differential cost of making the modifications, you know,
4 it just depends here. But there's a principle here, and
5 it should be explored.

6 The other major issue that I think that ought
7 to be addressed is the fact that the NRC continues to
8 utilize the NRC standard for \$1,000 per person-rem, and
9 that is basically outdated, and it's undervaluing the risk
10 reduction measures that could be used and what are cost-
11 effective.

12 It is clear that the \$1,000 per person-rem
13 aversion criterion is outdated, and the NRC is currently
14 under an examination of reviewing the \$1,000 per person-
15 rem, and it's our understanding that while we know that
16 there is going to be a change, we don't know the degree to
17 which that will change, the magnitude upon which that will
18 change. That should have an impact.

19 We are suggesting that the NRC changes its use,
20 and that they may actually use something closer to what
21 the actual U.S. nuclear industry is using, or even what
22 some other utilities are using, which is 5,000 to \$10,000
23 per person-rem, and the impact of that would be, well,
24 significant to the use of, or the design improvements in
25 the plant, and it would be warranted based on a value

1 impact analysis, so I think that that ought to be looked
2 at.

3 The other thing is that we were talking a
4 little bit about the Watts Bar individual plant
5 evaluation, and we were talking about -- that was the IPE,
6 or the PRA, the probabilistic risk assessment kind of
7 looks at his broad risk of a severe accident, and right
8 now we believe that the IPE and the subsequent SAMDA
9 studies do not consider external initiating events such as
10 fire, earthquakes, external flooding, and so on.

11 External events are potentially important, and
12 in some cases dominant contributors of risk arising from
13 severe accidents.

14 Failure to include these external events
15 renders the draft environmental impact statement and SAMDA
16 considerations incomplete.

17 So I guess those are some broad issues.

18 I also would like to make a note that we're
19 talking about the IPE being reduced. We have not at our
20 office made a significant look at why the -- the original
21 IPE was extremely high, and TVA made subsequent changes to
22 reduce that risk number, but it's our understanding -- and
23 I'm not completely sure about this yet -- that the
24 majority of that risk was in a system, in a certain system
25 of the plant that was not addressed by the IPE.

1 In fact, it is our understanding that most of
2 the reductions were made on paper, that they just changed
3 procedures, or they generally changed procedures and they
4 had an opportunity to reduce that risk even further by
5 changing specific components in the plant, but they did
6 not choose to do that, because of course it would cost too
7 much.

8 I'd like --

9 MR. NEWBERRY: Do you have much more?

10 DANIELE: Yes, I do have much more, and I'm
11 going to stay up here.

12 Will somebody allow me to take the time here?
13 because --

14 MS. HONICKER: You can stay.

15 DANIELE: I would also like to address the
16 fact that the quality -- the assertion here is that the
17 risk at Watts Bar is, as long as all the regulations, the
18 quality assurance and quality control regulations are
19 being followed at Watts Bar then the risks of a severe
20 accident which does have an impact on the local
21 environment because of the radiation, that the risk is
22 low.

23 But what I'm trying to make a point about is
24 that the current, the public's assessment of where this
25 plant is in terms of its safety and its compliance with

1 the plan is fairly low.

2 In a recent -- the Nuclear Regulatory
3 Commission on December 22nd, 1994 released their overall
4 assessment of Watts Bar. This is where they think Watts
5 Bar stands today, and I will finish my statement after I
6 read this, but this is what you all are saying about Watts
7 Bar yourselves, and this is what we're seeing, and this is
8 why we're very concerned this evening:

9 "There are three main functional areas that
10 define construction performance at Watts Bar. Site
11 management, engineering modifications, and quality
12 assurance and quality control."

13 This is what the NRC believes about site
14 management: "The staff believes that at Watts Bar both
15 site and corporate management place disproportionate
16 emphasis on the rate of work accomplished as compared to
17 the emphasis that's placed on quality verification.

18 "This imposes a scheduler pressure" -- schedule
19 pressure, of course -- "which although a normal aspect of
20 construction completion, must be controlled to ensure that
21 quality is not compromised.

22 "In several instances TVA declared that major
23 construction activities such as corrective action programs
24 and special programs were ready for inspection in
25 accordance with the scheduled date, only to be later found

1 deficient either by the NRC during inspection, or by TVA
2 just prior to the NRC inspection.

3 "The staff concluded that the TVA's management
4 disproportionate emphasis on work performance resulted in
5 some degradation of long-term quality accountability on
6 the part of TVA staff at the site.

7 "Short-term goals and tasks were emphasized by
8 TVA management, but a sense of individual and personal
9 responsibility seemed lacking at many points in the
10 organization. Such activities as the corrective action
11 programs and special programs had groups of owners (?)
12 resulting in diffused responsibility and lessened
13 accountability.

14 "Continual turnover of the middle management
15 and supervisory levels has contributed to a lack of
16 accountability. It has been a lack of continuity and
17 change of direction which has not been conducive to
18 consistency of purpose, and could result in mixed
19 expectations at the line of level.

20 "Most TVA managers lack longevity at Watts
21 Bar. Since the construction restart in 1991, with the
22 exception of the vice president, new plant completion all
23 senior managers have changed. These changes include, but
24 are not limited to, the site vice president, start-up
25 manager, plant manager, licensing manager, QA manager,

1 modification manager and project manager.

2 "The ability to license Watts Bar depends
3 largely on TVA's successfully implementing numerous
4 corrective commitments made between 1986 and 1989.
5 Implementation of these corrective actions in turn depends
6 on management's detailed awareness of and strong
7 commitment of these requirements.

8 "The continuing management changes have
9 contributed to instances where the same mistakes have been
10 repeated and the original problems have not been
11 corrected. As management at the site has changed, the
12 reasons for some corrective actions and programs appear to
13 be no longer well understood. This makes successful
14 completion of the older corrective actions and prevention
15 of recurrence very difficult."

16 Under engineering modifications, "Engineering
17 modifications and major line organizations working to
18 complete construction at Watts Bar. Although the majority
19 of CAPs and SPs" -- corrective action programs and special
20 programs -- "have conducted acceptability to 75 percent
21 goal and proceeding on track toward completion, several
22 failures to achieve required quality levels have occurred,
23 especially in the implementation of electrical CAPs.

24 "The fact the NRC inspections reveal any
25 significant problems in what is essentially corrective

1 action work is disturbing. Some specific electrical work
2 has been poorly implemented.

3 "Most of the recent construction work at Watts
4 Bar involves correction, correcting preexisting problems.
5 Because TVA devoted inadequate attention to the
6 identification of root causes and implementation of
7 effective recurrence controls, TVA has had to develop and
8 implement additional corrective actions to ensure the
9 design output will be met.

10 "TVA personnel exhibited little sense of
11 ownership and accountability for the quality of plant
12 construction. Independent reviews of engineering
13 modifications and activities have demonstrated that
14 management expectations have not reached the working level
15 uniformly, and assumption of responsibility by the lower
16 levels of line organization has not been universal.

17 "This is compounded in the electrical area by a
18 tendency to focus on the completion of specific subtasks
19 while neglecting to view the actions of plant personnel as
20 part of the whole to resolve the fundamental problem.

21 "If a sense of ownership were instilled in the
22 line organizations, people involved with work would ensure
23 that problems were solved."

24 And lastly the quality assurance and quality
25 control at this plant. "Quality assurance and quality

1 control should serve as a safety net at Watts Bar and
2 ensure its quality levels have been achieved. However,
3 the recently identified...problems cast doubt on recent
4 performance of QC because NRC uncovered the problems after
5 QC failed to find inadequate implementation of the
6 electrical and cable CAPs and some other defects.

7 "TVA management has not effectively utilized
8 the quality organization and its role in assuring that
9 Watts Bar is constructed in accordance with applicable
10 standards and commitments.

11 "The Watts Bar quality organization has not
12 been given a commanding visible role in setting the
13 standards and assuring quality performance at Watts Bar.

14 "As a result, the quality organization has
15 lacked aggressiveness in ensuring appropriate QC or line
16 verification activities are specified for important
17 safety-related work. The staff noted during several CAP
18 and SP inspections that QA reviews had been inadequate.

19 "Watts Bar was extensively inspected by the NRC
20 staff. One unfortunate aspect of extensive inspection is
21 that the NRC staff has tended to become the mechanism for
22 setting quality standards for Watts Bar to varying degrees
23 supplanting TVA's quality organization."

24 MR. NEWBERRY: Is there anybody that needs to
25 leave at nine that has signed up for comments such that

1 you want the microphone before I let Daniele continue
2 here? She's pretty well prepared, and has quite a few
3 comments I think we need to get into the record.

4 Okay.

5 DANIELE: So I mean I've got copies, I can get
6 copies of this to people, but you can see that there is a
7 serious doubt by the NRC that this plant is where it
8 should be.

9 And I recognize that this particular, you
10 know, session focus isn't on this, but you can recognize
11 from the public's perspective this is the only opportunity
12 for us to actually go to the NRC and say "Hey, guys, we're
13 really concerned about this plant."

14 I want a couple of things to be addressed in
15 the environmental review.

16 I don't feel the decommissioning,
17 decontamination/
18 decommissioning was adequately reviewed. I don't
19 understand where -- decommissioning can cost between 500
20 million and a billion dollars. Currently NRC is looking
21 at different standards for clean-up activities in terms of
22 how much workers will deal with radiation, et cetera, and
23 I want to understand how the new NRC regulations are going
24 to deal with maybe an increase in the amount of
25 decommissioning and decontamination.

1 you to send them in to the NRC.

2 MR. PALLA: Bob Palla with the PRA group at
3 NRC. I was responsible for the severe accident mitigation
4 design alternative evaluation.

5 You raised a couple of good points, and I just
6 wanted to try to clarify how we saw those same issues.

7 You pointed out that shared systems, or some of
8 the Unit 2 systems could be used in Unit 1, and I don't
9 know if you had a chance to review the SAMDA write-up or
10 not.

11 If you did, you would see that some of the --
12 in fact, we may not have gone into a lot of detail about
13 the extent to which Unit 1 does take credit for the Unit 2
14 systems, but there are some shared systems primarily in
15 the area of electric power supply where components that
16 were originally placed there for Unit 2 will be dedicated
17 to
18 Unit 1.

19 There will be tech spec controls placed on
20 them, and they will be just as if they were dedicated and
21 put there for the exclusive purpose of Unit 1, so they
22 will be covered by the full suite of regulatory
23 requirements. As I say, primarily electrical power
24 systems; these are the ones that I'm aware of. There may
25 be some fluid systems as well, but I'm not sure about

1 that.

2 Two of the procedures, as someone indicated
3 early in the presentation, TVA has committed to implement
4 three additional improvements -- these were of a
5 procedural nature -- as a result of the SAMDA evaluation.
6 Two of those three procedure changes do in fact make use
7 of systems that are in Unit 2, and there will be cross-
8 connects and things of that nature that would allow those
9 systems to be used for Unit 1, and to further reduce core
10 damage frequency.

11 The second point that you raised was that the
12 \$1,000 per person-rem number is outdated.

13 I want to make it clear that we didn't use the
14 \$1,000 per person-rem value as a decision criteria, we
15 used it as a basis for screening things out. You have to
16 have some kind of a basis or point of reference by which
17 you can try to judge fixes, improvements to plants, and
18 judge whether these are worth the money that they do cost.

19 I mean everything costs some money, and you
20 want to have the biggest bang for the buck when you're
21 making some changes. If you have a limited budget, you're
22 going to want to pick the fixes that give you the best
23 risk reduction.

24 So we try to use a figure meritus value impact ratio.

25 Again, we use it as a screening criteria, we

1 use it to try to identify those things that are most cost
2 beneficial, and then we go from there.

3 We use the value of \$1,000 per person-rem.
4 It's been the value that's been on record for many years.
5 One would think that, yeah, we ought to get back to that,
6 relook at it, everything else has gone up in cost, why
7 shouldn't that go up as well.

8 To that let me just say that there is an
9 activity that's underway, there will be a Federal Register
10 notice issued -- I don't know when, these things sometimes
11 take a lot longer that you'd expect -- but it is in effect
12 codifying the value that would be used.

13 And the number there -- there's been a pretty
14 major effort to revisit the bases for the value -- it's
15 not significantly different, it's within a factor of a
16 couple.

17 I probably shouldn't say what it is, but it's on the order
18 of a couple, so that's not significant.

19 We looked at all of these design alternatives
20 that were within a factor of ten. We found that there
21 were five that were within a factor of five of \$1,000 per
22 person-rem, and we looked at them more closely.

23 I think if you changed the value from \$1,000
24 per person-rem to \$2,000 per person-rem you would not pick
25 up any additional design improvements that -- you know, we

1 wouldn't have missed anything in doing that.

2 You raised the point about IPE not considering
3 external events and, as such, the FES is incomplete.

4 It's true that the IPE that was used as the
5 basis for estimating core damage frequency was in fact
6 just for internally-initiated events, and one could have a
7 more complete assessment if you did consider the whole
8 slew of external events that can be postulated at plants.

9 I think it's a pretty safe statement, though,
10 to say if you've looked at plants, if you've looked at all
11 the internally-initiated events and you've developed a
12 reasonably complete and adequate way of responding to
13 internally-initiated events, then in the event of an
14 external event these same methods and procedures that you
15 might use basically to keep the core cool would be
16 effective in externally-initiated events as well.

17 So you're trying to reduce risk as best you
18 can for internally-initiated events, and in doing so you
19 improve the ability to deal with external events.

20 I'm not saying that we shouldn't consider it,
21 we could be more complete, but I'm thinking we get a lot
22 of the mileage out of just looking at internal events.

23 That's it.

24 MR. NEWBERRY: I think Daniele indicated she
25 was going to provide written comments, and I think we

1 would be obligated to address them in the final.

2 The next individual is Jill McAfee.

3 MS. McAFEE: My name is Jill McAfee, I'm
4 environmental toxicologist at the Oak Ridge National
5 Laboratory Environmental Sciences Division.

6 I just completed my master's in ecology with a
7 focus on sediment and sediment contamination in the Clinch
8 River system, and I also have publications in both World
9 Book Encyclopedia and the Encyclopedia of the Environment
10 concerning exotic species, as well as being an adjunct
11 faculty at Pellissippi State.

12 Basically what I am addressing tonight is the
13 effect of -- we've been talking about the impact on the
14 species in the system due to the presence of Watts Bar.

15 What people don't seem to realize is there's a
16 ripple effect produced in an ecosystem. If one species is
17 damaged, there's a ripple effect just like dropping a
18 stone in the water, and it gets bigger, and bigger and
19 bigger.

20 When population levels change, it also opens up
21 the prospect for exotic species such as the zebra mussel
22 and Asiatic clam to come into the system and, as it's well
23 know, if you look at the system in the Great Lakes these
24 things can really wreak havoc not only on the ecosystem,
25 but also on the industry that's there.

1 Introducing molluskicides into the water to
2 kill these -- these are extremely hardy organisms. I mean
3 like I said, I wrote a paper for World Book about zebra
4 mussels, these are very, very hardy, they don't fall to
5 the normal things that you would think that they would.

6 What happens in the native species end up
7 getting killed off, and the zebra mussels and the Asiatic
8 clams are still there.

9 I agree with Mike when he says that I find it
10 very difficult to believe that the level of molluskicides
11 required to weed out these exotic organisms is not going
12 to have any kind of impact on these already damaged and
13 weakened mussel beds.

14 That is the problem, they're already weakened,
15 and they're susceptible to any type of input like this.

16 I mean we're talking -- not only are we
17 talking about -- I also want to address the sediment
18 issue. Not only are we talking about mussels, but let's
19 say for some reason the molluskicides don't affect the
20 mussel beds, even though they're already extremely
21 weakened.

22 Let's say by some act of God they don't do
23 that. These contaminants are still -- from my work on the
24 Clinch River I have seen decontaminants not only stay in
25 the water, but they bind to the sediment, and sediment

1 doesn't just go down to the bottom of the river and lay
2 there. Sediment is an active part of the ecosystem, just
3 like alga is, just like the water is.

4 There are detrovores that graze along the
5 bottom, and they're going to -- you've got snails down
6 there -- they're going to graze. They're going to graze,
7 they're going to pick up the contaminants, and they're
8 going to be eaten by something else, which is going to be
9 eaten by something else, and the next thing you know
10 you've got bio-accumulation.

11 It doesn't get less and less and you go
12 through the food web to larger and larger organisms as
13 some people would think it would, it gets more and more
14 and more, and that's something that we really need to
15 address, because the study that I did on the Clinch River
16 showed that there has been a build-up of contamination in
17 the Clinch River.

18 We're not talking about necessarily the same
19 chemicals here because we're talking about radiation
20 output from Y-12 Oak Ridge National Laboratory, that sort
21 of thing, but the effect is still there, and sediments I
22 tested from the Clinch River are toxic. They're toxic --
23 okay. You know, yeah, you're saying we're not talking
24 about the same thing, but it's the same effect, and what
25 happens if they're toxic to alga, if they're toxic to fish

1 larvae, if they're toxic to little arthropods, why aren't
2 they going to be toxic on a larger scale as that kind of
3 chemical moves up through the food web?

4 Another thing that I wanted to also reiterate
5 from what Mike said is the toxicological testing that was
6 done on this was totally inadequate.

7 When we do toxicity testing at Oak Ridge
8 National Laboratory on sediment and on aquatic systems we
9 use a variety of organisms, and we generally try to get
10 ones that might actually occur in the system that we're
11 looking at.

12 This needs to be readjusted completely. There
13 needs to be more extensive toxicity testing done on this.
14 You cannot even begin to relate the impact of two entirely
15 different species to a chemical.

16 When we do our testing at Oak Ridge National
17 Laboratory we will have organisms X, Y and Z. Z may react
18 terribly, X and Y will be fine. Well, does that mean "Oh,
19 well, okay, X and Y are fine so, you know, we can just go
20 ahead and dump it out there"? No, it doesn't, because Z
21 is part of that ecosystem too.

22 This needs to be readdressed before this plant
23 is opened for operation, if it becomes open for operation,
24 because the testing that has been done, as I said, is
25 totally inadequate, and I think it -- I mean you would

1 really paying for the plant, and we're the customers that
2 are going to receive the electricity, I think it's
3 reasonable that if people are interested enough to want
4 more input that perhaps you could have more hearings and
5 allow input, because there are people in other areas of
6 the state that couldn't attend tonight, and they would
7 very much like to, and the fact that they're interested I
8 would think you might be honored, and if you could have
9 more hearings for them in other areas of the state I think
10 that would be very appropriate.

11 The other thing is after working on this plant
12 for 22 years I believe it is actually rather outdated, and
13 I'm sure it's gone through lots of different design
14 changes over the years, but it's like once you have -- I
15 don't know, it would be like trying to teach a dinosaur to
16 drive a car or something like that. You know, it's almost
17 an impossible task to make it operate safely.

18 Actually we have a good contingency plan
19 perhaps for the use of it. Since Oak Ridge is collecting
20 all of this uranium from all over the world, from Russia
21 and from dismantling bombs and stuff, perhaps this would
22 be an ideal storage facility, because your buildings here
23 are much better built than the ones that are at Oak Ridge
24 presently in use for storage. The ones there are like so
25 old from the forties that a good tornado I'm sure could

1 blow them over and expose all that uranium.

2 These buildings seem to be more sound, so
3 perhaps this would be a better storage facility, which
4 would be a good use of the facility.

5 Considering that there's already been lots of
6 accidents here and the plant hasn't opened, it doesn't
7 really make us feel very reassured that more accidents
8 wouldn't occur. I mean there were already three accidents
9 this year, including a fire in the control room. And what
10 can I say? I mean that just doesn't make you feel like
11 that the plant would be very safe to operate.

12 There's been so many complaints from people
13 working on the plant that the electrical systems are not
14 properly done, and the welds are not done up to codes that
15 why expose it to more danger.

16 Then I wondered why TVA is the only utility in
17 the U.S. that's still trying to get a nuclear plant on
18 line. I mean it's like are we slow or something?

19 If everybody else has found them not feasible
20 to continue operating, perhaps we should see why they
21 think that, and maybe we should follow their suit.

22 The life of a nuclear plant is very short, and
23 then you have all this problem with decommissioning them,
24 and then what do with the waste that's going to last for
25 200,000, 300,000, 500,000 years, I mean more years than we

1 can even imagine in our minds. And that's something that
2 you have to figure in.

3 You can't say "Well, okay, we made
4 automobiles," and the waste from the automobiles, you
5 know, now it's causing all this problem with acid rain.
6 Well, all this nuclear pollution is going to be causing
7 damage for so many thousands of years on so many
8 generations that you really have to put that in as part of
9 the equation, which really makes it unfeasible.

10 I appreciate the work that you've done on
11 this, and it seems to me that a lot of the studies about
12 not affecting the biology and the aquatic creatures in the
13 area might be possible in an ideal world, and it probably
14 would be true if you didn't operate, so to reach these
15 statistics I think you would have to not operate the
16 plant, to be actually truthful. The health effects for
17 this two cancers in ten -- well, some of the statistics
18 that I've looked at by people that have followed nuclear
19 plants are that if you even live in the county of a
20 nuclear you have a 300 percent increased chance of getting
21 cancer, if you even live in the same county, at the far
22 end of the county. So you have a lot more chance of
23 getting cancer by living near by.

24 And then when you think of all the plants that
25 are already operating -- I mean I'm sure that the people

1 at Oak Ridge had very good intentions, and had no idea
2 that they were going to be contaminating all the waters
3 and the streams there, and that now people can't fish, or
4 eat the fish there, or, you know, that it's such a big
5 mess to clean up -- and when you think of all the nuclear
6 plants, I mean every one I can think of has had some kind
7 of serious accident.

8 You know, the Fermi plant they almost lost
9 Detroit; Browns Ferry has had all kinds of
10 fires;

11 Three Mile Island was a mess, and I'm sure
12 there's thousands and thousands of people that have cancer
13 from that; Chernobyl was a major disaster;

14 San Onofre had electrical fires;

15 The Hanford Plant is closed, and I mean how
16 many trillions of years that will take to clean up I don't
17 even know;

18 Rocky Flats is closed;

19 Barnwell is contaminated.

20 So even though these figures might exist in an
21 ideal world, the ideal world doesn't exist, so lots more
22 people are going to get cancer than are listed in this
23 study, and leukemia, and all kinds of other things, as
24 well as birth defects.

25 I mean I have met people from Oak Ridge that

1 can't have children, and you probably all have met people,
2 too, so this is something to consider that we're not only
3 affecting us, but we're affecting future generations.

4 Okay. Now, when you talk about setting up this
5 evacuation plan, does that mean that we get to have some
6 fire drills? Are the people here actually going to try
7 evacuating? Because I mean you really should try it,
8 because how do you know if it ever works if you don't try
9 it?

10 In an emergency everybody would be in such a
11 state of panic they wouldn't be able to evacuate very
12 safely and, you know, if you have enough fire drills maybe
13 they will be able to, I don't know, but I mean it
14 endangers the whole area. Not just this area, but the
15 whole area around us, the states around us, and I don't
16 know where we would evacuate to. If the highways were not
17 here, where would we go? So it's really wishful thinking,
18 I guess.

19 The other thing is that the congress right now
20 is trying to balance the budget, and I think you could
21 really help balance the budget if you didn't operate the
22 plant. But considering it's already cost six to eight
23 billion dollars and it has so many overruns, and so many
24 problems, it would probably help the budget by not
25 operating it.

1 And I don't really understand why TVA gets to
2 build plants in the red, because most businesses wouldn't
3 be able to do that. So that's kind of an odd thing.

4 And then the other thing is that the present
5 congress wants to cut all funds for clean-up, so they may
6 not want to continue clean-up of Oak Ridge, and they may
7 not want to clean up here, and they may not want to clean
8 up anywhere else, so who will be doing the clean-up?

9 In the history of looking at Oak Ridge, the
10 companies that did the work during the war have all left,
11 and they're not held responsible, so who will really be
12 responsible if the congress doesn't put up the money?

13 I mean as the citizens that are going to be
14 using this, we have to think about this.

15 Okay. Tornados and all these natural disasters
16 compound the accidents that could happen, so you can have
17 a compounding effect from the natural and the accidents
18 within the plant to make it an untenable situation.

19 They had big tornados also last year near Oak
20 Ridge, and they seem to be a fact of life here that we
21 just have to, you know, work with, and it's impossible for
22 almost any building to stand up to tornado type of winds.

23 Anyway, like I said, while these figures might
24 exist in an ideal world, our world is not ideal, and
25 unfortunately we're going to be in big trouble.

1 I guess that's it.

2 MR. NEWBERRY: Thanks for those comments. I
3 think we'll consider those for addressing in the final.

4 Mary Ann Heine.

5 MS. HEINE: I believe the issue here is
6 changes in the plant, or changes in the environment that
7 should be addressed in this environmental impact
8 statement, and I just have a couple of quick points that I
9 would like to make, things that I don't believe that were
10 addressed here that should have been addressed.

11 First biologically and socio-economically.
12 First of all, biologically I realize this falls under more
13 of the domain of the Fish & Wildlife Service, but you are
14 required when a species is listed as endangered to come up
15 with some type of recovery plan, and that was not
16 indicated in this environmental impact statement, not only
17 for the species that were previously listed, but for those
18 that have been added, and I would like to request that
19 that information be somehow provided whether you're going
20 to be designating critical habitat, whether you're going
21 to be relocating the species, or whether you're just going
22 to leave them to their own devices, we would like to be
23 provided with that information.

24 Socio-economically, again the issue is what has
25 changed in operations of the plant, or in the environment

1 that should be addressed here, and the troubled history of
2 the plant was not addressed. I'm sure you're aware that
3 there are more whistleblower complaints on file about
4 Watts Bar than about any other nuclear plant in the
5 country.

6 There's also -- last summer it was very
7 detailed in the newspaper accounts of the Nuclear
8 Regulatory Commission turning over the names of
9 whistleblowers to TVA. There have been lots of documented
10 cases of harassment, workers are afraid to come out with
11 safety concerns.

12 I would like the troubled history of the plant
13 to be addressed, I would like the -- basically the
14 reluctance of workers to come up with their safety
15 concerns because of the documented harassment by TVA of
16 whistleblowers who have addressed their concerns to TVA,
17 as well as the -- as Daniele was mentioning earlier,
18 quality assurance, quality control, the high rate of
19 turnover of managers, the lack of faith that the NRC has
20 in documentation of problems at Watts Bar. So I would
21 like that to be addressed, I would like the troubled
22 history of the plant to somehow be addressed to the people
23 within the context of the environmental impact statement.

24 And finally decommissioning. In the draft
25 environmental impact statement it details the process of

1 decommissioning, of what a utility has to do for
2 decommissioning and the expenses, but it doesn't give any
3 details about TVA specifically, and I think we're all
4 familiar with TVA's financial woes in these times.

5 I really would like somehow more specifically
6 in this draft environmental impact statement for changes
7 in how TVA is going to come up with money for
8 decommissioning now that the economic situation at TVA has
9 really become pretty sketchy.

10 So those are the things that I believe have
11 changed that I really would like to see addressed within
12 the environmental impact statement.

13 MR. NEWBERRY: Thanks for those comments.

14 D. A. Morgan.

15 MS. MORGAN: I'll yield to John.

16 MR. NEWBERRY: You'll yield to John, all
17 right.

18 Becky Heim.

19 MS. HEIM: I think they have addressed the
20 environmental part pretty good. I just wanted to make a
21 couple of statements.

22 Last night my husband and I had dinner at the
23 City Cafe in Brentwood -- by the way, there are four of us
24 from the general Nashville area, I figure we represent
25 approximately 150,000 people each.

1 Chattanooga, Tennessee, with a semi-organization called
2 Catooa Earth First.

3 For those of you who don't know, Catooa is the
4 old Cherokee name for the Southern Appalachian bioregion
5 within which we are now in, the most biologically diverse
6 place on the North American continent, and I think one of
7 the most beautiful places which is currently threatened by
8 people who can't see through the error of their ways and
9 want to continue to build nuclear plants.

10 The first thing I would like to say is that the
11 NRC and the TVA being agencies of the federal government
12 have a mandate from the Clinton administration to use
13 recycled paper. This doesn't feel like recycled paper,
14 and you only used one side, and I think that's a really
15 big insult to whatever piece of national forest died so
16 you could put this information out and give it to us. You
17 need to start using recycled paper, and you need to use
18 both sides.

19 As far as the draft environmental impact
20 statement goes, for the record I'd like to ditto what Dr.
21 McKinney had to say, and ditto what Daniele had to say.
22 You all need to reevaluate your finding of no significant
23 impact.

24 I think it is pathetic that you don't have to
25 deal with the nuclear waste issue. I can't remember the

1 name of the law that was passed that basically absolved
2 you and the TVA of that responsibility, but it's basically
3 the classic case of passing the buck, and I think that if
4 a nuclear facility is going to utilize uranium that was
5 mined, then it needs to be responsible for that material
6 from the cradle to the grave.

7 Just to mention a few things that have already
8 been said, the discovery of additional mussel beds and
9 additional endangered species lends to questions on the
10 accuracies of your studies. I'm wondering is the mussel
11 study thorough enough, are these the only populations that
12 are there. I think these are questions I would like you
13 to take into consideration throughout the comment period.

14 And once again, none of the six endangered
15 mussels are in the same genus as those that were tested,
16 and you all need to deal with that.

17 The Endangered Species Act mandates plans to
18 recover endangered populations and habitats. Where are
19 these plans? You don't have them. Especially in light of
20 your documentation of the gradual decline in mussel
21 species, abundance and diversity, you need to designate
22 critical habitat and plans for restoration, et cetera, et
23 cetera.

24 We all know that Watts Bar is the most unsafe
25 nuclear facility in the country, and you don't deal with

1 this at all in the draft environmental impact statement.

2 I noticed you had a section on environmental
3 justice. I think that's great that you had that, but you
4 totally do not deal with justice issues dealing with
5 employees at the facility who are harassed and intimidated
6 when they come forward to tell the truth about safety
7 concerns with the plant.

8 And I recently have been given documents
9 concerning the murder of Judy Pendley, and I don't think
10 that was ever resolved and, you know, other people who
11 were coming forward with concerns back in 1985 were
12 receiving death threats and stuff like that when they
13 spoke at TVA board meetings, and I think that's an issue,
14 a justice issue that you all need to deal with.

15 Let's see. Also, you know, when you have the
16 scoping hearing for this thing -- I got here late and
17 everything, but quite a few of us ask that you look at the
18 cumulative impacts of this facility.

19 I'll be honest with you, I did not read the
20 impact statement from back to cover, from front to back,
21 but I didn't find anything in there that dealt with the
22 cumulative impacts of like everything in this region and
23 how Watts Bar adds to those cumulative impacts.

24 The woman over there was mentioning the ripple
25 effect, and you all just didn't deal with that as far as I

1 could tell. You need to deal with the fact that we have
2 an acid rain problem in this region, we're suffering ozone
3 depletion, which most scientists believe leads to
4 increased UVB radiation. What kind of effect does
5 increased UVB radiation have on mussel populations, for
6 example?

7 Also the other threats to this region include
8 water pollution and deforestation.

9 I also want to know how you want to deal with
10 the cumulative impact of if molluskicides are used how are
11 these things going to mix with herbicides that TVA used to
12 spray in the reservoir system because in their whatever,
13 they're so smart they thought it was a good way to deal
14 with water plants, and ended up decimating the bass
15 populations in the Chickamauga and Nickajack reservoirs,
16 and there is residue of that stuff still in the
17 reservoirs, so what are going to be the synergistic
18 effects of those chemicals in the water.

19 At the November 30th management meeting that
20 the NRC and TVA had -- I wish I could have gone, I got the
21 paper about it -- and the NRC expressed a total lack, this
22 is a quote "A total lack of confidence in TVA and its
23 quality assurance/quality control program." This is
24 something you need to address in this draft environmental
25 impact statement.

1 you need to give another stop work order because the TVA
2 obviously cannot live up to your inspections.

3 And I just want to mention that the President's
4 Council on Sustainable Development is meeting in
5 Chattanooga this week, and during their public comment
6 session on Friday they are going to hear about what's
7 going on with TVA and the Watts Bar Nuclear Plant.

8 The Council on Sustainable Development has a
9 mandate to present a definition of sustainable
10 development, which at this time is development that meets
11 the needs of the present without compromising the needs of
12 future generations.

13 I think an \$8 billion boondoggle that is the
14 most unsafe facility in the country poses a risk of
15 compromising the needs and the health and safety of future
16 generations.

17 This council is supposed to recommend policy
18 options to the president to deal with this whole issue of
19 sustainable development, and they're going to be told in
20 no uncertain terms that no more nuclear power is a part of
21 any kind of sustainable development, because simply
22 nuclear power is unsustainable, it always has been, and it
23 always will be.

24 I also want to mention that if you give Watts
25 Bar a license and an accident occurs, you will be held

1 accountable, all of you with the TVA and with the NRC. I
2 don't care what the law says, you will be held
3 accountable, and it will be on your conscience the loss of
4 life and the loss of species and diversity of habitat that
5 will occur here if a severe accident occurs there.

6 It is also my opinion that you should extend
7 the comment period another thirty days to give those of us
8 who don't have quite an excellent technical background
9 some extra time to read and sort through the jargon and
10 try to decipher it.

11 Let's see. I've got a few more things.

12 It is also my opinion that you should not give
13 this facility a license because I think history has proven
14 that Watts Bar was designed by idiots and is being built
15 by fools.

16 Now, this is something I may have missed
17 because, like I said, I didn't read the whole thing, but I
18 did not find any assessment of the environmental impacts
19 of batch releases of tritium and other things that I know
20 that the Sequoya Nuclear Plant releases into the Tennessee
21 River, so I think you need to address this, and I would
22 really appreciate it if TVA would stop batch releases,
23 because I'm poor and I have to drink the water from the
24 Tennessee American Water Company like most of Chattanooga,
25 and I can't afford to go to the health food store and buy

1 bottled water at 36 cents a gallon. So I don't appreciate
2 drinking that stuff.

3 We have had meetings with Tennessee American
4 over different issues, and they can only test for five to
5 six hundred chemicals, and there's, you know, thousands in
6 the river, and I don't know if they're testing for
7 anything that Sequoya is releasing, or that Watts Bar may
8 potentially release through these batch releases.

9 Let's see. Back to the issue of nuclear waste,
10 I think it is an example of the continuing attitudes
11 against people who are non-white in this country that you
12 have seen fit to try to pay off native Americans to get
13 them to hold the nuclear waste on their land, and I think
14 that that kind of thing needs to stop.

15 Most people who live on reservations who
16 aren't associated with the BIA-controlled tribal council
17 don't want the nuclear waste on their property.

18 I'm also curious if you've looked into new
19 studies coming out of the University of North Carolina
20 dealing with suspected fault lines running down the
21 Tennessee Valley, and how that is going to impact the
22 operation of Sequoya and Watts Bar.

23 TVA has proven that it cannot build a nuke
24 plant safely or economically, it cannot conduct an
25 investigation of so-called terrorist groups, and I really

1 doubt that it's got the ability to come up with competent
2 escape plans if there is a severe accident at Watts Bar,
3 and I think you should look into that, too.

4 And I think that you all need to look into the
5 faulty wiring problems with the cables, and the whole
6 issue of the splicing problems that are going on there,
7 and how that increases the likelihood of a severe
8 accident.

9 I just want to finish up to let you all know
10 that we are taking steps and making an effort to educate
11 the general public to the truth about the Watts Bar
12 Nuclear Plant, and despite the deliberate attempts at
13 confusion by the TVA board in December, people will know
14 the truth that the last nuclear plant under construction
15 in this country is still going on.

16 You know, you in the NRC and the TVA know, and
17 I hope you realize this, that you're under closer scrutiny
18 than ever before. We're watching you, everybody else is
19 watching you. We don't want this plant to come on line,
20 and in closing, if you insist on licensing Watts Bar, and
21 if TVA insists on finishing it, I think that you'll find
22 that the civil disobedience and nonviolent civil
23 resistance that will ensue will make July 11th look like a
24 tea party.

25 Thank you.

1 (Scattered applause.)

2 MR. NEWBERRY: Jeanine, you're the last one.
3 Is there anyone else before Jeanine makes her comments
4 here?

5 (No response.)

6 MR. NEWBERRY: Go ahead.

7 MS. HONICKER: I wanted to talk to you all.
8 The NRC is going to do what they are going to do. I think
9 it's wonderful that all of you care enough to come.

10 Some of the questions that I had probably are
11 not to be addressed by the NRC, but maybe by the TVA, and
12 you know they hold a board meeting frequently. If you're
13 not on their agenda notice list, it's easy to call the
14 public information office at TVA and get an agenda notice
15 and go to their board meetings.

16 Every board meeting should be filled with
17 people who have these questions and these concerns,
18 because ultimately the power to stop the plant rests with
19 the TVA and the board.

20 The TVA act says that TVA shall produce
21 electricity at the lowest feasible cost. I believe the
22 environmental impact statement is supposed to talk about
23 cost and alternatives.

24 The question that I would have is what is the
25 reserve capacity now, and are you considering the Watts

1 Bar steam plant as part of the reserve capacity. How much
2 electricity has been used, and if you are over the reserve
3 capacity you have no financial reason or obligation to
4 license this plant or to let it run.

5 Michele brought up an interesting alternative
6 use for the site, and that is to store the uranium from
7 the bombs. You know we're taking apart 2,000 nuclear
8 bombs a year, and the stuff is being stored at Oak Ridge
9 in old wooden buildings that were built before the second
10 World War, not in containment buildings.

11 So I propose that TVA sell the Watts Bar Unit
12 1 and Unit 2 to the DOE for \$26 billion, and look what it
13 would do to you if they did. Your bills would immediately
14 go down by a third. That would have a very good impact on
15 the region, because then we could attract industry, and we
16 could be the leading area that we were told we would be in
17 1975 when they said that the use of electricity would
18 double in ten years, and in 1985 it was less than it had
19 been in 1975.

20 So I think that TVA needs to be creative and
21 look at ways to sell, but the price must be \$26 billion.
22 And the DOE says that cost is no object, so it would be
23 easy to do, it would just simply be like assuming a
24 mortgage. DOE could assume the debt that TVA has made,
25 which we have already paid for. You know, they got most

1 of the money from the Federal Financing Bank -- that means
2 us, the taxpayers -- so that's the way to write the thing
3 off. So I applaud you for coming up with that, Michele.

4 There are other things that I would like to
5 question. What about the three SAMDA improvements
6 recommended to improve safety? Are those listed?

7 MR. NEWBERRY: Yes.

8 MR. HONICKER: Where are they listed? I
9 didn't see those.

10 Okay. Does it say how much they will cost?

11 MR. NEWBERRY: Yes.

12 MS. HONICKER: How much is that, please? Can
13 you just not tell me quickly? I don't have my glasses
14 with me tonight.

15 MR. PALLA: Let me just state the three
16 procedures that were committed to were not looked at in
17 terms of cost, because there was an agreement already.

18 MS. HONICKER: Can you tell me how much that
19 is?

20 MR. PALLA: I don't recall.

21 MS. HONICKER: Is it here? Is it listed, the
22 cost listed?

23 MR. PALLA: We did not report the cost for
24 those.

25 MS. HONICKER: Why not?

1 MR. PALLA: Because cost was not an issue,
2 because these procedures were already going to be
3 implemented.

4 MS. HONICKER: You see, it bothers me when
5 cost is not an issue. Cost is an issue.

6 We might as taxpayers prefer to feed the
7 hungry and house the homeless instead of pouring more
8 money down a nuclear plant that you've been pouring money
9 into for 22 years. And we say it's not going to operate,
10 so cost is an issue.

11 How much longer do you say it's going to take
12 to do these three? And what about the other 23? You
13 know, and what about all of those problems that the
14 whistleblowers found, and that the Nuclear Safety Review
15 Team found? Have they been publicly admitted to, and each
16 one addressed and solved? Is that what you've been doing
17 for 22 years, or have you simply been using a pencil and
18 paper and harassing people and scaring them and telling
19 them to shut up and be quiet or you'll lose your job, and
20 many of them really losing their jobs, and then replaced
21 by people that made ten times more money, or three times
22 more money.

23 You know, I think that there are some grave
24 questions that need to be asked, and finally this plant
25 needs to be put to rest right now, that the best way to

1 save money is to never make it radioactive. Once you've
2 turned on the switch, it's going to cost us more money
3 than it would cost us if we quit right now, even if \$8
4 billion has been poured down the drain. Just write it
5 off, and go on to do something productive.

6 The people who have had jobs building the plant
7 have learned good trades. Let the pipefitters become
8 plumbers. I know that most of us would like to be able to
9 hire a good plumber. My plumber vacations in the Bahamas,
10 so I think there's good money to be made in plumbing.

11 The people who have poured concrete can pour
12 sidewalks. We've got things that we need to do to improve
13 our infrastructure and, you know, the only good thing that
14 I can see that has happened is that maybe some people have
15 learned some trades that they can use to improve the
16 economy and improve the way of life.

17 But to turn this plant on is absolutely
18 outrageous and unforgivable, and shall never happen. I'm
19 just convinced that it will never happen.

20 I look at the faces of young people out here
21 and I know that you are concerned about your lives and the
22 future of your plant and your Tennessee.

23 And when you're asking about the evacuation
24 plan, it's not enough to just have general ideas. Tell
25 every person where they are to go. You know, if you don't

1 to close January 30th.

2 VOICE: Could you extend that?

3 MR. NEWBERRY: The request was made to
4 consider extending it. We'll consider extending it.
5 We'll look at all the things we need to look at, and we'll
6 consider extending it.

7 VOICE: Could you give us the address?

8 MR. NEWBERRY: Yes. I'll leave that up there
9 for anybody who wants to copy it down.

10 In closing, the fact that we were here and
11 heard your comments first-hand is helpful to us. We have
12 the transcript to help us.

13 It would be most helpful also to provide
14 written comments. I would encourage you to do that, and
15 there is the address.

16 If you're going to write in, use the first
17 address. The second address is if they were going to be
18 delivered.

19 John?

20 MR. JOHNSON: Shall we make it to your
21 attention, or to chief?

22 MR. NEWBERRY: I assure you if you use that
23 address on there -- we've gotten a lot of your letters
24 with attention me, or EIS or anything. They have all come
25 in.

1 The comments get put in the final. You'll
2 see a blank section there with Appendix "A" where the
3 comments and our response to the comments will appear in
4 that report.

5 You know, I know that you know that some of
6 your comments are outside the scope of our environmental
7 review. We have an obligation, however, to take those
8 comments and look at them, and give them to the
9 appropriate part of the agency to take action if we think
10 that needs to be done.

11 VOICE: Do you have a fax number?

12 MR. NEWBERRY: Do we have a fax number?
13 There's a lot of fax machines in the building, ma'am, but
14 that's a good address really. It will get to us. I don't
15 have my fax number.

16 People do not have to provide written
17 comments. I think the oral comments for those of you that
18 stood up and talked were helpful. I think we're going to
19 end up with an accurate transcription of those comments
20 which will be helpful.

21 (Question re videotaping).

22 MR. NEWBERRY: We have videotaped before and,
23 frankly, didn't get a lot more out of it. A good hard
24 copy of a piece of paper is in my opinion easier to use
25 than a video.

1 VOICE: Will there be any follow-up, any more
2 future meetings?

3 Are there going to be any public hearings
4 about for instance like a licensing date or anything like
5 that?

6 MR. TAMBY: Once again I have to address this.
7 Today as I said, this is an environmental meeting.
8 However, a major, major part of NRC's effort is called
9 safety review, and that is not what we are addressing
10 tonight.

11 We have a series of reports, and in fact I
12 just found a copy in which we address in great detail
13 about emergency preparedness, especially evacuation.

14 I would like to give you a copy, since you
15 were the first one that asked for it, and for those who
16 want a copy of this report where it talks about emergency
17 preparedness and evacuation, please leave me your address.
18 I will give the only copy to this lady who first asked for
19 it.

20 I did ask for people to give me their names and
21 addresses. There is another thing I would like to give
22 you. Not being a lawyer, I don't want to talk about the
23 hearing aspect, but the mechanism that exists for people
24 to request hearings in the NRC regulations. But I don't
25 want to go into the legal aspect of it.

1 I have a letter which is in the public domain.
2 If you give me your address, I'll send you a copy of the
3 letter that will tell you exactly how to request a
4 hearing. Otherwise, the details are in the NRC
5 regulations.

6 MS. HONICKER: That's 2006, something like
7 that. None have ever been granted.

8 MR. TAMBY: That's also under the original
9 regulations, but I'll get you a copy of the letter.

10 MS. HONICKER: People have requested it, but
11 none have ever been granted.

12 MR. TAMBY: Obviously, ma'am, we are following
13 the administrative procedure law, and we all have to
14 follow the law, and in order to request you have to go
15 through the procedure.

16 MS. HONICKER: We can request, but it won't be
17 granted. That's what I'm saying.

18 MR. NEWBERRY: With that, I thank you for
19 coming. I will close the meeting.

20 (At 9:45 p.m., Tuesday, January 10, 1995, the
21 meeting was closed.)

22

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C E R T I F I C A T E

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter:

Name of Proceeding: Watts Bar Environmental Review

Docket Number:

Place of Proceeding: Sweetwater, TN

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission, taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

L.V. PARTAIN
Official Reporter
Neal R. Gross and Co., Inc.