

NUCLEAR REGULATORY COMMISSION

ORIGINAL

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In the Matter of:

South Carolina Electric & Gas Company)

Summer Nuclear Station, Unit 1 )

) Docket No. 50-395 OL

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DATE: July 15, 1981

PAGES: 2997 - 3303

AT: COLUMBIA, SOUTH CAROLINA

ALDERSON  REPORTING

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Telephone: (202) 554-2345

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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: In the matter of: :  
: SOUTH CAROLINA ELECTRIC & GAS COMPANY : Docket No. 50-395-OL :  
: (Summer Nuclear Station, Unit 1 : :  
- - - - - x

Assembly Room I  
Carolina Inn  
Columbia, South Carolina  
Wednesday, July 15, 1981

Evidentiary hearing in the above-entitled  
matter was resumed, pursuant to adjournment, at 9:04 a.m.

BEFORE:

HERBERT GROSSMAN, ESQ., Chairman,  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D. C.

MR. GUSTAVE A. LINENBERGER,  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D. C.

DR. FRANK F. HOOPER,  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D. C.

## 1 APPEARANCES:

2 On behalf of the Applicant, South Carolina Electric  
& Gas Company:

3 JOSEPH B. KNOTTS, JR., Esq.  
4 Debevoise & Liberman  
1200 Seventeenth Street  
5 Washington, D. C.

6 RANDOLPH R. MAHAN, Esq.  
South Carolina Electric & Gas Company  
P. O. Box 764  
7 Columbia, South Carolina 29218

8 On behalf of the State of South Carolina:

9 RICHARD P. WILSON, ESQ.  
Assistant Attorney General  
10 State of South Carolina  
P. O. Box 11549  
11 Columbia, South Carolina 29211  
12 DR. SAMUEL L. FINKLEA, III, PH.D.  
South Carolina Department of Health  
and Environmental Control  
13 2600 Bull Street  
Columbia, South Carolina 29201

14 On behalf of the NRC Staff:

15 STEVEN GOLDBERG, ESQ.  
16 MITZI A. YOUNG, ESQ.  
U.S. Nuclear Regulatory Commission  
17 Washington, D. C. 20555

18 On behalf of the Intervenors:

19 BRETT ALLEN BURSEY  
Route 1  
20 Little Mountain, South Carolina

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C O N T E N T S

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<u>WITNESS:</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RE-CROSS</u>	<u>BOARD</u>	<u>CROSS</u> <u>ON BOARD</u>	<u>VOIR</u> <u>DIRE</u>
Kenneth E. Beale, Rebecca M. McSwain, William R. Baehr, Douglas C. Warner (Resumed)							3000
By Mr. Bursey							3003
By Mr. Bursey	3016						
By Mr. Knotts							3019
By Mr. Bursey	3020						
By Mr. Knotts							3022
By Mr. Bursey							3036
By Mr. Wilson							
By Chairman Grossman						3046	
By Mr. Linenberger						3056	
By Dr. Hooper						3059	
By Mr. Knotts			3064				
By Mr. Bursey							3066
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Kenneth E. Beale (Resumed)							
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By Mr. Bursey							3216
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By Mr. Bursey							3223
By Mr. Goldberg							3242
By Mr. Wilson							3244
By Chairman Grossman							3247
By Mr. Linenberger							3248
William H. Baehr (Recalled)							
By Mr. Knotts							3259
By Mr. Bursey							3264
By Mr. Knotts							3276

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<u>WITNESS</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>REXCROSS</u>	<u>BOARD</u>	<u>CROSS</u>	<u>VOIR</u>
Thomas A. Kevern and Jack D. Richardson							
By Mr. Goldberg	3279						
By Mr. Bursey						3290	

E X H I B I T S

<u>NUMBER</u>	<u>IDENTIFIED</u>	<u>IN EVIDENCE</u>
Applicant's 30-A	3106	3115
Applicant's 30-B	3114	3222
Applicant's 15-A	3116	3118
Applicant's 15-B	3116	3118
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Prefiled testimony and professional qualifications of Jack D. Richardson.....		Page 3287

P R O C E E D I N G S

1  
2 CHAIRMAN GROSSMAN: The eleventh day of hearing is  
3 in session.

4 The Applicant's emergency planning brochure panel  
5 has resumed its seats.

6 Mr. Goldberg, I believe I misspoke the other day  
7 in asking you whether one of your panels was ready to go,  
8 and I believe I mentioned emergency planning. I meant the  
9 QA/QC, and whether you could assure us that they would be  
10 available today. Perhaps I did not, but I do not have  
11 yesterday's transcript.

12 Could you set the record straight on that?

13 MR. GOLDBERG: Yes, Judge. We are awaiting, I  
14 believe, an additional individual or individuals from our  
15 regional office who are supposed to arrive mid-day, and we  
16 would hope that either late in the afternoon, or if we have  
17 an early evening session, that we can proceed with that  
18 panel. We had thought that we would put on our direct case  
19 on emergency planning before that if convenient.

20 CHAIRMAN GROSSMAN: Yes, that is what the Board  
21 intended, and we understood that they had been ready. It  
22 was the only QA/QC that we were concerned about.

23 MR. GOLDBERG: Right. They are en route, I  
24 understand.

25 CHAIRMAN GROSSMAN: Mr. Bursey, we had at the end

1 of the day an offer of qualifications, statements, and the  
2 direct testimony of these panel witnesses, and we allowed  
3 you to come in this morning and indicate whether you had  
4 voir dire or objections, or both, and you may proceed now,  
5 Mr. Bursey.

6 MR. BURSEY: Thank you, sir.

7 Whereupon,

8 KENNETH E. BEALE

9 REBECCA M. MC SWAIN

10 WILLIAM R. BAEHR

11 DOUGLAS C. WARNER,,

12 the witnesses on the stand at the time of recess, resumed  
13 the stand, were further examined and testified as follows:

14 VOIR DIRE

15 BY MR. BURSEY:

16 Q Let me see who we have on the panel. We have Mr.  
17 Warner, Mr. Baehr, Ms. McSwain and Mr. Beale.

18 Mr. Beale, do you have a degree in nuclear health  
19 physics?

20 A (WITNESS BEALE) No, sir.

21 Q Does anyone on the panel have a degree in nuclear  
22 health physics?

23 A (WITNESS BAEHR) I do.

24 Q And what has your focus been?

25 A (WITNESS BAEHR) I received a BS degree in

1 physics, as the allowed document has shown. I also received  
2 a master of science in nuclear engineering, specifically in  
3 radiological health, from the Georgia Institute of  
4 Technology in 1971.

5 Q And Ms. McSwain, have you had any training in  
6 radiation health physics?

7 A (WITNESS MC SWAIN) No, I have not.

8 Q And I understand that each of you played some role  
9 in the composition and the contents of the emergency  
10 brochure.

11 A (WITNESS MC SWAIN) That is correct.

12 MR. BURSEY: That would be the extent of my voir  
13 dire.

14 CHAIRMAN GROSSMAN: Do you have any objections to  
15 their qualifications going in?

16 MR. BURSEY: No, sir.

17 CHAIRMAN GROSSMAN: Admitted.

18 (The statements of qualifications of Kenneth E.  
19 Beale, Rebecca M. McSwain, William R. Baehr, and Douglas C.  
20 Warner follow:)

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PROFESSIONAL QUALIFICATIONS

K. E. BEALE

My name is Kenneth E. Beale. I am Emergency Planning Coordinator for South Carolina Electric & Gas Company. In this position I am responsible for coordinating all emergency planning activities for corporate management organization, external offsite emergency organizations, and the V. C. Summer Nuclear Station emergency organization.

I received an A.A.S. Degree in Nuclear Electronics from Old Dominion University in 1964. Additional courses which I have taken since that time are: "Basic Radiological Health," Department of Health Education and Welfare, Rockville, Maryland, 1969; "Occupational Radiation Protection," Department of Health, Education and Welfare, Winchester, Massachusetts, 1971; "Health Physics Refresher Course," Health Physics Society, Delaware Valley Chapter, Philadelphia, Pennsylvania, 1975; and "Health Physics in Radiation Accidents," Oak Ridge Associated Universities, Oak Ridge, Tennessee, 1977.

From 1964-1965, I was employed as a Radiological Monitor at the Newport News Shipbuilding and Dry Dock Company. In this position I performed routine radiological surveys on and around nuclear submarines. General

radiation and contamination control activities for shipyard workers were also routine duties of this position.

From 1965-1967, I was employed as Senior Health Physics Technician with Controls for Radiation, Inc. In this position, I was responsible for directing the day-to-day surveillance of health physics activities at the large government space operations center. Health physics activities were directed to small and large radioactive sources inventory control, particle accelerators and x-ray machines.

From 1967-1973, I was employed by the Pennsylvania Electric Company as a Radiation Protection Engineer. In this position I was responsible for all radiation protection activities at the Saxton Nuclear Experimental Test Reactor. The radiation protection activities included plant operations and decommissioning. I participated in the development of emergency plans for the Saxton reactor for normal operations and decommissioning activities.

From 1973-1976, I was employed as a Health Physics Supervisor at the Metropolitan Edison Company. In this position I was responsible for all health physics programs at the Three Mile Island Nuclear Station, Unit 1. I supervised and directed the development of the radiological safety program and procedures for the start-up and

commercial operation of Unit 1. Additional responsibilities in the area of emergency plans and procedures development were required for this position.

From 1976-1980, I was employed by South Carolina Electric & Gas Company as Health Physics Supervisor. In this position I was responsible for all health physics radiological safety programs at the V. C. Summer Station. All of the emergency planning activities, including plans and procedures for the V. C. Summer Nuclear Station, were the responsibility of this position.

From January 1980 - October 1980, I was the Emergency Coordinator, located at the V. C. Summer Nuclear Station. In this position I was responsible for the development, coordination and implementation of emergency plans for coping with radiation emergencies, at the V. C. Summer Nuclear Station. All of the planning and coordination of radiological emergency activities among SCE&G and off site organizations having a response role were the responsibility of this position.

In October 1980, I assumed my present position as Emergency Planning Coordinator.

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PROFESSIONAL QUALIFICATIONS

REBECCA M. MCSWAIN

I am Supervisor, Nuclear Information for South Carolina Electric & Gas Company.

In 1975, I graduated from the University of South Carolina with a B.S. in Science Education. I am presently pursuing a Masters in the Art of Teaching (MAT) in Natural Science. Additionally, I have completed Westinghouse Electric Corporation's Pressurized Water Reactor Information course and South Carolina Electric & Gas Company's Supervisory Development course.

From 1975 to 1978, I taught Earth Science to the eighth grade at Oak Grove School.

From 1978 to 1979, I taught Life Science to Lexington Middle School's seventh grade.

In 1979, I was employed by South Carolina Electric & Gas Company as Coordinator, Educational Services. I held this position until I assumed my present position in 1980.

PROFESSIONAL QUALIFICATIONSWILLIAM R. BAEHR

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*Corporate*  
I am Manager of ~~the Nuclear~~ Health Physics and Environmental Programs for the Nuclear Engineering and Licensing Group of the South Carolina Electric & Gas Company. My principal responsibilities include the development of the Corporate ALARA Program and the necessary procedural program to control the performance and scope of activities of the ~~Nuclear~~ *Corporate* Health Physics and Environmental Programs group. These activities include developing, recommending, implementing and supervising corporate policy and programs with regard to radiological affairs; providing ~~Nuclear~~ *Corporate* Health Physics support and recommendations to plant design and operational activities through technical reviews; conducting operational radiological and non-radiological environmental monitoring programs, including emergency situations for the V. C. Summer Nuclear Station; monitoring Virgil C. Summer Nuclear Station activities for compliance with applicable radiological and non-radiological environmental regulations; and implementing Company policy and coordinating activities with outside organizations and governmental agencies as relate<sup>d</sup> to health physics and environmental programs.

I graduated from Lenoir Rhyne College in 1969, with a B.S. in Physics, and received an M.S. degree in Nuclear Engineering, Radiological Science Option (AEC Health Physics Fellowship) from Georgia Institute of Technology in 1971.

From 1971 to 1973, I served as Radiation Safety Officer for the Georgia Department of Human Resources, Radiological Health Unit in Atlanta, Georgia, where my responsibilities included the evaluation and licensure of Georgia users of Radiocactive Materials; inspection of Licensees, maintenance and calibration of radiation detection instruments; emergency response; formulation of initial State Radiological Emergency Plan; planning, development and initial implementation of the State's Environmental Surveillance Program, including the design, laboratory set-up, selection of equipment and methods, etc.

In 1973, I became Staff Health Physicist for the Production Engineering Department of South Carolina Electric & Gas Company in Columbia, South Carolina, where I was responsible for the engineering review of Health Physics related design parameters for the V. C. Summer Nuclear Station; conducted and coordinated the Biological, Hydrological, Meteorological and Microseismic Monitoring Programs; coordinated the preparation of the Operating

License Environmental Report and those sections of the FSAR related to Health Physics and environmental concerns; and also had the responsibility for the design, implementation, and operation of the Environmental Surveillance Program.

In 1977, I became Health Physicist and Environmental Coordinator for the Nuclear Operations Department, where I designed, implemented, operated and managed all aspects of the off-site Environmental Surveillance Program, its laboratory and staff. Additionally, I reviewed and made recommendations relating to the Health Physics aspects of plant design and operations; provided technical and staff support for the in-plant Health Physics group; reviewed and coordinated activities involving nuclear project-related non-radiological monitoring (Meteorological, Biological, Hydrological, etc.); and coordinated the Nuclear Operations Department involvement in licensing efforts in the areas of Health Physics and Environmental affairs.

I progressed to my present position as Manager of ~~the~~ <sup>Corporate</sup> Nuclear Health Physics and Environmental Programs for the Nuclear Engineering and Licensing Group in 1980.

*Changes by  
W. Buck*

1           CHAIRMAN GROSSMAN: Do you have any objection to  
2 the prefiled direct testimony being entered in the  
3 transcript?

4           MR. BURSEY: No, sir.

5           CHAIRMAN GROSSMAN: Admitted.

6           (The written direct testimony of Kenneth E. Beale,  
7 Rebecca M. McSwain, William R. Baehr, and Douglas C. Warner  
8 follow:)

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TESTIMONY OF

K. E. BEALE

SOUTH CAROLINA ELECTRIC & GAS COMPANY  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Introduction

My name is K. E. Beale. I am Emergency Planning Coordinator for South Carolina Electric & Gas Company. A statement of my professional qualifications is attached (Appendix A). I am responsible for coordinating all emergency planning activities for corporate management organization, external offsite emergency organizations, and the V. C. Summer Nuclear Station emergency organization. The purpose of my testimony is to describe the emergency planning activities of South Carolina Electric & Gas Company for the V. C. Summer Nuclear Station; to describe the working relationship SCE&G has had with the Federal, State and local agencies in the development and test implementation of their respective plans and functional elements; and to address specific allegations of insufficiency in those plans and SCE&G's plan and the ability of involved agencies to implement elements of those plans, contained in Intervenor Bursey's and Fairfield United Action's contentions.

## EMERGENCY PLANNING IN GENERAL

Specific emergency planning activities for the Virgil C. Summer Nuclear Station have been ongoing since early 1976. Initial contacts were made with State and local officials and other off-site agencies who may be involved in emergency response for the nuclear station.

Early emergency plans for the V. C. Summer Nuclear Station were developed under the requirements of 10 CFR 50, Appendix E, and the guidelines of certain regulatory guides pertaining to emergency planning for nuclear power plants.

Local emergency medical transportation and fire support were investigated for emergency response for the nuclear station and agreements were developed with these agencies. Agreements with hospitals were established to care for injured plant personnel. All of these activities were needed to fulfill the goals of an effective emergency planning program.

Following the Three Mile Island accident, South Carolina Electric & Gas Company studied intensively the various lessons learned on emergency planning from the accident. The new requirements of 10 CFR 50, Appendix E, and the additional guidelines of NUREG-0654 were closely reviewed and examined. Additional information on emergency

planning from the Kemeny Report and Rogovin Report also became available and was reviewed. In late 1979, South Carolina Electric & Gas Company established a full time position for emergency planning. Until this time, emergency planning responsibilities were shared by the nuclear station engineering and health physics groups. Since emergency planning is closely related to the radiological safety aspects of onsite and offsite organizations and the general public, an individual with both radiological safety and emergency planning backgrounds was sought for the position, and I was assigned.

Prior to the accident at TMI, SCE&G had maintained a close contact with certain State and local agencies and officials. A good working relationship with all the State and local officials within the Plume Exposure Pathway Emergency Planning Zone (EPZ) was established. The cooperative effort established has been extremely helpful in the effective development of emergency plans for all participating agencies.

In June, 1980, SCE&G submitted a revised radiation emergency plan to the NRC in response to the requirements of 10 CFR 50, Appendix E and the guidance of NUREG-0654, January, 1980. In April, 1981, the State and local governments submitted their emergency plans to the Federal

Emergency Management Agency (FEMA) to meet the guidelines of NUREG-0654, Revision 1.

On May 1, 1981, a radiological emergency exercise was carried out to test the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. The simulated emergency required mobilization and response of State and local governmental organizations to verify the capability to respond adequately to an actual emergency. The exercise was observed by Federal observers from the Nuclear Regulatory Commission and Federal Emergency Management Agency.

DISCUSSION OF INTERVENOR B. A. BURSEY'S CONTENTION

CONTENTION A8:

The Applicant has made inadequate preparations for the implementation of its emergency plan in those areas where the assistance and cooperation of State and local agencies are required.

RESPONSE:

Emergency planning activities for the V. C. Summer Nuclear Station have been on-going since early 1976. As previously mentioned, contacts were made with State and local officials in coordinating the emergency response

activities for all participating organizations. Local emergency medical transportation and fire support were investigated for emergency response to the Summer Station. Hospital service agreements were established in case of any injury to plant personnel. All of these activities were needed to fulfill the goals of an effective emergency planning program for the utility, State, local, and Federal agencies in providing the needed emergency response, if an emergency were to take place at Summer Station.

Since 1976, South Carolina Electric & Gas Company has established agreements with ambulance services to transport the workers at the station to the Richland Memorial Hospital, if necessary. South Carolina Electric & Gas Company has also established agreements with Richland Memorial Hospital in Columbia, South Carolina, and a back-up facility located in Oak Ridge, Tennessee, for use in the treatment of injured and contaminated and/or radiation overexposed workers at the V. C. Summer Nuclear Station. Training has been provided to the local hospital and the medical transportation personnel and will continue on an annual basis.

Volunteer fire departments surrounding the Summer Station have agreed to respond to a request for aid from the Station in fighting fires at the Station. Training has

been provided to these fire departments and will continue on an annual basis.

South Carolina Electric & Gas Company has provided all Summer Station personnel and key corporate office personnel with a thorough orientation on the emergency plans and procedures required during an emergency at the Station. Special training exercises were held with the State and county officials to review and implement the overall emergency preparedness program for the V. C. Summer Nuclear Station.

Periodic drills and exercises will be conducted in order to test and verify the emergency preparedness of all participating personnel, organizations and agencies, as well as to demonstrate the workability of the features tested. Such an exercise was recently implemented by SCE&G, State and local county agencies to place the plans into action and evaluate their effectiveness. The results were on the whole very favorable. A primary purpose of drills and exercises is to identify areas needing improvement. I am pleased to report that there were few such areas identified.

Routine tests of communication equipment to insure immediate notification response capability will be performed. Periodic training exercises to test the level

of emergency preparedness will be performed by SCE&G, State and local county agencies. All of these actions will be implemented throughout the life of the V. C. Summer Nuclear Station in accomplishing our goal of protecting the health and safety of the general public.

All of the emergency planning discussed has been accomplished to assure that, if the Summer Station Radiation Emergency Plan is implemented, South Carolina Electric & Gas Company, the State of South Carolina, local government officials and Federal agencies will have the knowledge, experience and instructions to maintain a level of emergency preparedness for any emergency condition and to protect the health and safety of the general public.

#### DISCUSSION OF FAIRFIELD UNITED ACTION CONTENTIONS

##### CONTENTION 7:

A.(II.B.1) The Applicant's plan does not meet the minimum staffing requirements as set forth in Table B-1.

##### RESPONSE

Section II.B.1 of NUREG-0654 does not address the staffing requirements of Table B-1. Section II.E.1. states, "Each licensee shall specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the

normal staff complement." This specific criteria is discussed and addressed in Section 5.0 of the Summer Station emergency plan.

Section II.B.5 addresses the Table B-1 requirements. As stated in the V. C. Summer Nuclear Station Radiation Emergency Plan, Table 5-1, SCE&G has exceeded the required staffing requirements for on-shift and additional personnel in 60 minutes for emergency conditions. SCE&G has indicated in Table 5-1 that the staffing requirements for the 30 minutes response can be fully implemented in 45 minutes. SCE&G is continuing to review and discuss the additional personnel within 30 minutes requirement with the NRC. Section II.B.5 provides a time schedule for implementation of deficiencies by July 1, 1982. Although not specifically addressed at this time in Table 5-1 of the Summer Station Radiation Emergency Plan, a Chemistry Technician will be on shift by July 1, 1982 or by the date it receives an operating license, whichever occurs first.

CONTENTION 7 (Continued):

B. (II.B.9.) The Applicant's plan includes agreements with local organizations which fail to delineate the authority, responsibilities, and limits on their actions.



## RESPONSE

The Summer Nuclear Station Radiation Emergency Plan identifies the purpose of emergency preparedness to provide a mechanism that would be utilized in making decisions in the event of an emergency, and to assure that the necessary equipment, supplies, and essential services are available. The plan outlines the responsibilities and actions required from the local offsite agencies. Emergency plan procedures outline in detail the roles and authorities of the utility and local support personnel.

To assure proper coordination and understanding of authority and responsibility, all of the local support organizations which have agreed to support the Summer Station have been provided specialized training and instructions in the area of emergency response. The training was provided by SCE&G personnel at the Summer Station. Periodic emergency training exercises will be conducted by SCE&G involving local support organizations to maintain a good understanding of responsibilities and actions required by these agencies.

Recently, SCE&G and the medical transportation and hospital personnel participated in an exercise which simulated medical injuries with contamination. The outside agencies implemented their actions and responsibilities

extremely well. This training exercise with offsite participation confirms SCE&G's assessment that these agencies understand their response roles and responsibilities during an emergency condition at Summer Station.

CONTENTION 7 (Continued):

C. (II.E.1.) The Applicants have failed to demonstrate the ability to notify local Emergency Preparedness officials, as distinguished from communications centers, within 15 minutes.

RESPONSE

Section II.E.1. does not address directly the 15 minute notification of State and local government agencies. The 15 minute notification is a requirement of 10 CFR 50, Appendix E. Section 5.5 of the Summer Station addresses the concerns of Section II.E.1. of NUREG-0654.

In response to the 15 minute notification capability, SCE&G has provided dedicated telephones to all the four counties. A backup radio network is also available through the local law enforcement agencies and station security programs.

The recent emergency exercise for the Summer Station successfully tested and implemented the 15 minute

notification action by SCE&G to the State and local governments.

CONTENTION 7 (Continued):

D. (II.G.1.) The Applicants have not adequately planned for the distribution of informational materials.

RESPONSE

SCE&G worked closely with the State and local governments on the proper distribution of emergency information to the general public within the Plume Exposure Pathway EPZ. Officials of the post office were contacted on methods available to mail the information to the public. Other utilities were contacted to investigate their methods of distribution. After review and discussion of the information compiled, SCE&G distributed the emergency information to the general public within the ten mile area by means of the U.S. Postal Service in a bulk mailing operation. Although it is possible that a small number of the general public did not receive the emergency information, SCE&G will continue to work closely with the State and local officials in addressing other means available to properly inform the general public. SCE&G will, on an annual basis, conduct a statistical survey of the public to assess their awareness of what to do in case of an emergency at the Summer Station.

SCE&G will make available emergency information to local business people in the area for distribution to the transient population within the ten mile area. The distribution of this information to the local business people and the additional information displayed on signs at all boat ramps and recreation areas around Lake Monticello is adequate in meeting the needs of the transient population.

CONTENTION 7 (Continued):

E. (II.J.8. and Appendix A.) The Applicant has not developed realistic estimates of evacuation times and has not employed the methodology set forth in Appendix 4.

RESPONSE

In late February, 1980, SCE&G prepared estimates of evacuation times for the ten mile area surrounding V. C. Summer Nuclear Station.

The initial assessment was developed with no guidance from the NRC on the basis for this assessment.

In late 1980, SCE&G contracted Wilbur Smith & Associates to provide a Evacuation Time Assessment Study for the V. C. Summer Nuclear Station using the guidelines set forth in Appendix 4 of NUREG-0654.

The study by Wilbur Smith & Associates was submitted to the NRC in April, 1981. The results of the study indicate that households with cars available could be mobilized and begin evacuation within 60 minutes of evacuation warning. The time lapse from the time that a warning is issued to the time that the last car will leave the EPZ boundary under normal conditions is a maximum of 81 minutes. The original estimate provided by SCE&G indicated a maximum time of three hours and twenty minutes. This demonstrates the large degree of conservatism in the initial study.

CONTENTION 7 (Continued):

F. (II.J.10.c.) The Applicants have failed to provide adequate means for protecting those whose lack of mobility is impaired by lack of vehicles.

RESPONSE

Section II.J.10.c. does not address the means for protecting those persons whose mobility may be impaired by lack of vehicles. Section II.J.10.c. addresses means for notifying all segments of the transient and resident population. Sections 5.7 and 8.2 of the Summer Station, Radiation Emergency Plan discusses the concerns of II.J.10.c.

Section II.J.10.d. of NUREG-0654 does address lack of mobility, but only relative to institutionalized or other confined individuals such as those in prisons or hospitals. The ten mile area surrounding the Summer Station does not have any such institutions where special transportation is required.

The county emergency plans have specific guidelines and instructions on the requirements for emergency medical services and rescue services available to the county for those persons who are confined to their homes. Although the primary responsibility of SCE&G during an emergency is safely to shutdown the reactor facility and provide recommendations on protective actions for the general public, we are working closely with the State and local governments in this important area of special transportation to the general public. County officials have made several efforts to locate residents who might require special transportation. These special efforts are continuing.

CONTENTION 7 (Continued):

G. (II.J.10.e.) No plans have been made for the distribution and use of radioprotective drugs, such as Potassium Iodide, as a Protective Response for the general public.

RESPONSE

Section II.J.10.e. does not mention the distribution of radioprotective drugs to the general public. Section II.J.10.e. mentions "Provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons within the plume exposure EPZ whose immediate evacuation may be infeasible or very difficult ..." The State of South Carolina, Department of Health and Environmental Control has stated their policy on Potassium Iodide in their "Technical Radiological Emergency Response Plan." That position is that potassium iodide will be provided to emergency workers and persons unable to evacuate such as institutionalized people.

CONTENTION 7 (Continued):

H. (II.J.10.h.) Relocation Centers are not located at least five miles from the Plume Exposure Pathway EPZ, e.g., Winnsboro High School is a scant 2-3 miles from the EPZ. All of the relocation centers in Fairfield County are within ten miles of the EPZ.

RESPONSE

FEMA has provided some comments and questions to the State and Fairfield County on the present location of the reception center at Winnsboro High School. While Winnsboro

High School was designated as a reception center (a control point for registration of evacuees for further movement to a relocation center for sheltering) rather than a relocation center of the kind to which NUREG-0654 refers, nonetheless, Fairfield County is presently investigating the possible use of a reception/relocation center approximately 17 miles from the station and within the guidelines of NUREG-0654.

CONTENTION 7 (Continued):

- I. II.J.10. Table 6.2 in Applicant's Plan suggests that sheltering is the only Protective Action contemplated for the general public.

RESPONSE

Protective actions have been established to provide guidelines and response activities to be implemented for the health and safety of the general public during an emergency condition. Remaining indoors is one form of protective action. Evacuation is another. If evacuation is ordered by the Governor, providing shelter for evacuees is one of the primary objectives in the evacuation.

Other protective actions involve the proper feeding and care of milk producing animals within both emergency planning zones. Table 6.2 of the Summer Station Radiation



Emergency Plan contains a summary of actions to be taken by all response agencies if an emergency would occur at the Summer Station. Notification, evacuation, sheltering, and placing animals on stored feed are some of the protective actions mentioned in Table 6.1

CONTENTION 7 (Continued):

J. (II.J.10.M.) The plans do not set forth the bases for the choice of recommended Protective Actions from the Plume Exposure Pathway during emergency conditions.

RESPONSE

The basis for any recommended protective actions is the amount of projected or actual radiation exposure to the general public. The protective actions used in the utility and State plans are taken from the Environmental Protection Agency guidelines described in the EPA 520/1-78-001B. Section II.J.10.M. references background information available for determining protection afforded to the general public. One of the references is the EPA 520/1-78-001B which is used as a basis for State and utility plans.

CONTENTION 7 (Continued):

K. Hospital and medical services for the general public are not provided for.

RESPONSE

The responsibility of SCE&G is to provide for local and backup hospital and medical services having the capability for evaluation of radiation exposure and to handle contaminated individuals from the Summer Station. Richland Memorial Hospital and Oak Ridge Radiation Emergency Assistance Center, Oak Ridge, Tennessee, are the local and backup facilities, respectively. The Pinner Clinic is not relied upon for the treatment or receipt of radiation exposure or contamination injury of plant personnel.

All four of the county plans have discussed and identified the hospital and medical services available for use for the general public for any emergency condition within the respective county, including an emergency at the V. C. Summer Nuclear Station. If additional hospital and medical services are necessary for a county during an emergency, the request for State assistance is initiated by the county.

CONTENTION 7 (Continued):

L. (II.L.2.) On-site emergency first aid capability is inadequate.

RESPONSE

V. C. Summer Nuclear Station and SCE&G have implemented an on-going first aid training program for the station and Company personnel. An annual refresher training program on first aid will be given to Summer Station personnel to maintain a proper level of preparedness for basic first aid applications.

The Summer Station Radiation Emergency Plan states in Table 5-1 that, as a minimum, two people will be available on shift for purposes of Rescue and First Aid. The emergency plan also indicates that shift supervisors, operators, and health physics technicians will attend first aid training to ensure the availability of personnel to administer first aid on each shift.

CONTENTION 7 (Continued):

M. (II.M.2.) The News Media Center is not located at the Applicant's Emergency Operations Facility.

RESPONSE

Section II.M.2. does not address News Media Center.

Although the guidelines of NUREG-0654 and NUREG-0696 do not mention specifically a news media center, SCE&G has provided an Interim News Media Area which is approximately 75 feet from the Interim Emergency Operations Facility. The Interim News Media Area is a large conference room which can accommodate between 50 to 75 people. Section II.G.3.b. states that "Each licensee shall provide space which may be used for a limited number of the news media at the nearsite Emergency Operations Facility." We have more than met this guideline.

During the recent emergency exercise at the Summer Station, the Interim News Media Area was activated and tested for news information and press releases to the media personnel in attendance. With use of visual aids and Company personnel to provide plant specific information, the interim facility proved to be more than adequate for its purpose.

CONTENTION 7 (Continued):

N.(1) (II.H.2) The Interim Emergency Operations Facility does not comply with the requirements of NUREG-0696, Rev. 1.

RESPONSE

SCE&G has submitted to the NRC layout drawings of the Emergency Operations Facility which will meet the guidelines of NUREG-0696, Revision 1. The Emergency Operations Facility will be operational by the scheduled October, 1982 date, as stated in NUREG-0696, Revision 1.

The interim facility has available a backup location at the old Parr Steam Plant which is located approximately one mile from the interim facility. With backup capability available, the protection factor and ventilation criteria as outlined in NUREG-0696 are not applicable for the interim facility.

CONTENTION 7 (Continued):

N.(2) (Appendix 2). The Applicant's meteorological monitoring equipment does not meet the requirements of Appendix 2. It lacks a viable back-up system with emergency power and is not seismically qualified.

RESPONSE

SCE&G has committed to provide a backup meteorological measurements system capability as discussed in Appendix 2 of NUREG-0654.

Appendix 2 of NUREG-0654 does not specify or discuss seismic qualification of the primary or backup meteorological measurements system. With the low probability of seismic activity in this area and with the availability of the National Weather Service for additional backup support, we do not believe there is a need for seismic qualification of these systems. In addition, the NRC staff has already stated, "Except in California, we have not considered earthquakes to be of sufficient frequency and magnitude to be considered routinely in the emergency preparedness effort." (Advisory Committee on Reactor Safeguards, 253rd General Meeting, May 7, 1981, T at 120.)

CONTENTION 7 (Continued):

O. (Appendix 3.B.2). The Applicant has failed to demonstrate that its siren system will meet the requirements of Appendix 3, that the tests conducted by the Applicant on audibility were sufficient and that the siren system to be installed has a high level of reliability, including under seismic conditions, which might occasion a radiological emergency.

RESPONSE

Appendix 3.B.2 identifies the minimum acceptable design objectives for coverage by the system (siren and emergency

broadcast network). Appendix 3.B.2. does not address audibility guidelines, reliability or seismic conditions.

The acoustical warning system (sirens) to be installed around the Summer Station will satisfy the design objectives of Appendix 3. Appendix 3 states a 60 db sound level for the siren range for areas with population densities below 2,000 persons per square mile.

The system to be used by the four counties to warn the general public before the new siren system is installed around Summer Station will be by sirens on emergency vehicles and door-to-door by emergency workers. When the new siren system is installed and in operation, the present method utilized by the four counties will be used as a backup method.

CONTENTION 7 (Continued):

P. (Appendix 4). The Application has failed to comply with the requirements of Appendix 4 for determining and describing evacuation times, has failed to establish the acceptability of criteria used to establish evacuation times, and has failed to demonstrate the capability of Applicant and State and local governments to assure timely evacuation under accident conditions.

RESPONSE

Please refer to the response to Contention 7.e.

CONTENTION 7 (Continued):

Q. Applicant's and local plans demonstrate a lack of cooperation in their development and planned implementation.

RESPONSE

SCE&G, the State of South Carolina, and the four local governments have been working very closely for the last 12 to 18 months on the emergency planning program for the Summer Station. Special efforts were taken by all parties to work closely together in this planning project. A special task force with representatives from SCE&G, State Emergency Preparedness Division, the four local county governments and the Central Midlands Regional Planning Council was designated to coordinate the planning efforts. Cooperation and coordination between all of these participants has been extremely good and the results of the recent emergency exercise demonstrate this effort.

If evacuation is implemented by the Governor, the evacuees from Fairfield County will have adequate time and safety to evacuate to the relocation center. The relocation center will be located at a safe distance from



the EPZ for sheltering of the public. If for some special reason (traffic accident, adverse weather, etc.) the evacuees would require evacuation to another county, this information would be provided by means of the EPS. This particular phase of evacuation was simulated by several counties during the recent emergency exercise with very few problems.

CONTENTION 7 (Continued):

R. The Plume Exposure Pathway EPZ boundaries established in local plans are not based upon reasonable criteria which have been explicitly stated and demonstrated.

RESPONSE

The Plume Exposure Pathway EPZ boundaries for the V. C. Summer Nuclear Station site were defined and laid out by the State Emergency Preparedness Division with concurrence from the four counties involved. The boundaries were picked by geographical landmark (e.g., highway, river, county lines, etc.) to assist all agencies in identification of the area.

The layout of the Plume Exposure Pathway EPZ has been reviewed by the Federal Emergency Management Agency (FEMA) and meets the guidelines of NUREG-0654, Revision 1. NUREG-0396 states the radius for the EPZ implies a circular

area. The actual shape would depend upon the characteristics of a particular site. The geographical boundaries identified for the EPZ will aid the general public in proper identification of an affected sector.

CONTENTION 7 (Continued):

S. The failure to base Plume Exposure Pathway EPZ's on rational and scientifically defensible bases which give reasonable assurance that the health and safety of the general public will be protected exposes students at Kelly Miller Elementary School and Greenbrier Head Start Center in Fairfield County to unwarranted risks to their health and safety.

RESPONSE

The bases for the Plume Exposure Pathway EPZ discussed in NUREG-0654 came primarily from the studies of NUREG-0396. NUREG-0396 states, "The Task Force judgment on the extent of the Emergency Planning Zone is derived from the characteristics of design basis and Class 9 accident consequences. Based on the information provided in the report, and the applicable Protective Action Guides (PAG), a radius of about ten (10) miles was selected for the Plume Exposure Pathway and a radius of about 50 miles was selected for the Ingestion Exposure Pathway. The EPZ

recommended is of sufficient size to provide dose savings to the population in areas where the projected dose from design basis accidents could be expected to exceed the applicable PAG's under unfavorable atmospheric conditions." The information provided by this report is the basis for SCE&G, State, and local emergency planning.

The Kelly Miller Elementary School and Greenbrier Head Start Center in Fairfield County have been recently included in the emergency plans for the county. These two schools are located just outside the ten mile EPZ.

CONTENTION 7 (Continued):

T. And in other ways the Radiological Emergency Response Plans of the Applicant, the State of South Carolina, and the surrounding counties fail to comply with the requirements set forth therein.

RESPONSE

Emergency planning activities for the V. C. Summer Nuclear Station have been ongoing since early 1976. Contacts were made with Federal, State, and local officials in coordinating the emergency response activities of all participating organizations. SCE&G will continue a close coordination with the Federal, State, and local county officials in maintaining the level of emergency prepared-

ness necessary to meet the commitment of all organizations to protect the health and safety of the general public. The State of South Carolina, the four local county governments and SCE&G have prepared the emergency plans to meet the criteria outlined in NUREG-0654, Revision 1.

The State of South Carolina and the four county draft emergency plans have been available through the FEMA Region IV office since April 17, 1981.

#### CONTENTION 8

Public Information Materials distributed by the Applicant relative to radiological emergency response planning are inaccurate, intentionally deceptive regarding the potential health effects of radiation, and present evacuation routes which could result in persons unwittingly evacuating through the plume.

#### RESPONSE

The emergency information brochure briefly explains how the V. C. Summer Nuclear Station works. In the explanation it is pointed out that "radioactive water is not expelled into the heat exchanger. It simply loops its way through the exchanger and safely back to the reactor vessel." From the technical aspects of this explanation, the water is "contaminated." Later in the explanation, reference is

made to the "second loop." "The uncontaminated water in the second loop (steamline) is converted to the steam which causes the turbine to spin." The comparison between the two loops in the explanation is to show that one loop contains radioactive water and the other or second loop does not contain radioactive water. The explanation in no way attempts to mislead the reader. It simply states a technical fact of plant operation.

The emergency information brochure states that the "Level at which health effects can first be detected is 25,000 millirem." This information relates scientific fact as to common sources of radiation exposures. If an emergency would occur, and evacuation implemented, the general public would be evacuated long before radiation exposures of 25,000 millirem are reached. Protective action guides have been established and stated in the utility, State, and local plans on levels of radiation exposure to the general public.

The evacuation routes for the areas surrounding the Summer Station were reviewed by State and local officials and consultants. The primary evacuation routes provided in the brochures will not result in the general public evacuating through the plume. Protective actions will be implemented well in advance of this concern for the general

public. As discussed previously in Contention 7g., the residents should evacuate to their respective county relocation center. All of the county relocation centers are located at a safe distance from the emergency situation.

#### CONTENTION 9

The State of South Carolina and the counties surrounding the Summer Station do not have the capability for implementing protective measures based upon protective action guides and other criteria as they apply to residents of the Plume Exposure Pathway who do not own or have access at all times to private vehicles.

#### RESPONSE

The State of South Carolina and the four county governments have the transportation equipment necessary to evacuate the residents within the Plume Exposure Pathway EPZ who will require transportation assistance. The emergency plans for the four counties have described their specific transportation equipment available to each county. If additional equipment is required, the county in need will obtain support from the State of South Carolina and SCE&G. If the transportation needed involves medical

services, the county can either utilize the local county emergency medical services or request assistance from the State, which has access to the State National Guard medical transportation services.

Fairfield County is presently investigating alternatives for drivers of the school buses during an emergency situation. County employees or volunteer firemen are being considered as drivers for the buses. Fairfield County has an adequate number of school buses and transportation vehicles to evacuate the affected area. This particular question was addressed in the Evacuation Time Assessment Study performed by Wilbur Smith & Associates. Fairfield County has made numerous attempts to locate residents requiring transportation. The county did run newspaper ads to have residents contact the County Civil Defense Director. The response was not good. The County Civil Defense Director contacted local volunteers as well as local and State social services directors to obtain a list of local residents requiring transportation. Additional information was made available by SCE&G during a plant tour by local residents in the area. Fairfield County will continue to maintain a current list of special transportation needs of the county residents in the EPZ.

CONTENTION 10

Radiological Emergency Response plans of the Applicant, the State of South Carolina, and the surrounding communities have been formulated without reference to the Draft Environmental Statement, Supplement (NUREG-0534, Supplement) and thus fail to address appropriate protective measures needed to provide radiological protection to all residents in the vicinity of the Summer Station who might be threatened with injury or death from an accident greater than a design basis accident.

RESPONSE

The emergency plans of SC&G, the State and the local governments proceed from the same premise as the NUREG-0534 Supplement, that is, a large release of radiation such as might be associated with a very large core melting accident. The NUREG-0534 Supplement indicates that no consideration was taken for possible reductions to individual or population exposures as a result of taking protective actions as outlined in emergency plans. While it is true that NUREG-0534 as a document was not used in framing emergency planning scenarios because it was issued subsequent to the development of such scenarios and did not change them, the same and, indeed, more severe events were



~~considered. Thus, the emergency plans adequately address the environmental and radiological concerns discussed in the NUREG-0534 Supplement.~~

#### CONTENTION 11

The Applicant and the surrounding counties do not possess the experience and technical ability adequately to plan for emergency preparedness, to prepare for a radiological emergency, or the capability for implementing protective measures based upon protective action guides and other criteria as required under NUREG-0654, Revision 1, at II.J.9.

#### RESPONSE

The participants in the overall emergency planning for the Summer Station, from the utility, State and local agencies, possess a tremendous amount of experience and ability in overall emergency preparedness planning. The emergency plans for State and local governments have various agencies and organizations identified for support during any type of emergency. These specialized agencies have the day-to-day experience and background to perform their specified duties during an emergency condition. Example: a fireman can put out fires, an ambulance driver drives an ambulance, etc. All of the major participants in

the State and local plans have the experience and training to perform their specific emergency task.

The Fairfield County Director of Emergency Preparedness does not require a strong technical background in nuclear power or health effects of radiation. The County Director has obtained additional training in nuclear power accidents and basic radiological safety. The County Directors will rely on the experience and knowledge of the Bureau of Radiological Health of the South Carolina Department of Health and Environmental Control, on the technical aspects of nuclear power and health effects of radiation during an emergency operation. Department of Health and Environmental Control personnel have the experience and understanding of protective action guides and their relationship with radiological effluents and potential health effects.

The Corporate Emergency Planning Coordinator is responsible for the emergency preparedness related to the V. C. Summer Nuclear Station. The Summer Station Radiation Emergency Plan and Procedures development requires knowledge in nuclear plant operations, radiological safety and emergency preparedness. The basis for this contention agrees the experience required for the position should be an understanding of the characteristics of radiological

effluents and their potential health effects. Who better to fill this type of position than a person with health physics or radiological safety background. As indicated in my resume, I have been involved or participated in emergency planning at nuclear power plants since 1967.

The Emergency Coordinator at the Summer Station is responsible for ensuring the coordination of the Summer Station Emergency Plan with other offsite emergency plans. The Summer Station Emergency Coordinator has received some onsite and offsite training. On-going training will continue to maintain his knowledge and guidance that impact onsite emergency planning activities.

CONTENTION 12:

The Applicant and the surrounding communities lack Radiological Emergency Response plans which would permit quick and adequate response to an accident involving the transportation of radioactive wastes, especially irradiated fuel assemblies. Without such plans, the health and safety of the general public cannot be reasonably assured. The Applicant should not be granted a license to operate the Summer plant until such plans are developed.

RESPONSE

The South Carolina Comprehensive Disaster Preparedness Plan and the State of South Carolina, Technical Radiological Emergency Response Plan, identify and discuss transportation accidents involving radioactive material and the response action to be taken, if such an event would occur.

The Bureau of Radiological Health, Department of Health and Environmental Control, has instructed State and local law enforcement personnel as to the proper handling of transportation accidents involving radioactive material. Local county emergency preparedness personnel have received training relating to transportation of radioactive material. County officials are notified of radioactive waste shipments which will travel on highways within their county. The notification is performed in advance of the shipment.

3  
2/15

TESTIMONY OF K. E. BEALE

Errata

<u>Location</u>	<u>Change</u>
Page 1, 1st Paragraph, 1st Sentence	My name is Kenneth E. Beale.
Page 2, 1st Paragraph, 1st Sentence	Emergency planning activities leading to current preparedness for the Virgil C. Summer . . .etc.
Page 5, 2nd Paragraph, Last Sentence	Training has been provided to Richland Memorial Hospital personnel and the medical . . . .etc.
Page 5, 3rd Paragraph, 1st Sentence	Volunteer fire departments of Fairfield County have agreed to respond to a request for aid from V. C. Summer Nuclear Station in fighting fires at the station . . . .
Page 6, 3rd Paragraph, 3rd Sentence	The published result from FEMA & NRC were on the whole very favorable.
Page 6, 3rd Paragraph, Last Sentence	Areas which require some improvement were identified by SCE&G and the NRC. Action is now underway to correct these areas.
Page 34, 3rd Paragraph, 1st Sentence	(Misspelling)Coordinator
Page 35, 2nd Paragraph, 2nd Sentence	(Misspelling)Coordinator

1 CHAIRMAN GROSSMAN: Do you have cross examination  
2 now?

3 MR. BURSEY: Yes, sir.

4 CHAIRMAN GROSSMAN: Please proceed.

5 Excuse me, Mr. Goldberg.

6 MR. GOLDBERG: No objection.

7 CHAIRMAN GROSSMAN: Mr. Wilson?

8 MR. WILSON: No objection.

9 (Pause)

10 CROSS EXAMINATION

11 BY MR. BURSEY:

12 Q Which one of the panelists was primarily  
13 responsible for the composing of the actual verbage on the  
14 brochure?

15 A (WITNESS MC SWAIN) I was.

16 Q And Ms. McSwain, your prefiled summary indicates  
17 that part of the intent of the brochure was educational  
18 information on radiation.

19 A (WITNESS MC SWAIN) That is corect.

20 Q Is that correct?

21 A (WITNESS MC SWAIN) Yes.

22 Q Can you tell me where you got your data for your  
23 educational information on radiation?

24 A (WITNESS MC SWAIN) Which portion of it? I think  
25 you were supplied with some references in an interrogatory.

1 Q Yes.

2 You do not recall where the information came from?

3 A (WITNESS MC SWAIN) Yes, I have that list if you  
4 would like for me to read it for you.

5 Q Well, perhaps we could be specific.

6 You indicate in the brochure that health effects  
7 level at which health effects can first be detected is  
8 25,000 millirems.

9 A (WITNESS MC SWAIN) Yes.

10 Q Can you tell me where that information came from?

11 A (WITNESS MC SWAIN) Well, one place that it came  
12 from was in consulting with Mr. Baehr over here, and I have  
13 also stated that there was a reference in there to health  
14 physics -- excuse me, a nuclear engineering handbook. I am  
15 not sure, you know, which number that was in the references  
16 that you have, but it was called -- just a minute. Let me  
17 find it.

18 Here you go. It is Nuclear Engineering Handbook,  
19 and the editor of that was Harold I think it was  
20 Etherington. There is a misprint on here.

21 Q Can you tell me if that 25,000 millirems that you  
22 mentioned which health effects can first be detected, what  
23 health effects you can detect.

24 A (WITNESS MC SWAIN) I think you should ask Mr.  
25 Baehr that.

1 Q Fine.

2 A (WITNESS BAEHR) Specifically, the 25,000 number  
3 refers to somatic immediate effects due to acute radiation  
4 exposure.

5 Q And what would the somatic symptoms of that  
6 exposure be, let's say, in the most sensitive population  
7 segment?

8 A (WITNESS BAEHR) The specific syndrome we were  
9 talking about in this -- and you have to realize that in two  
10 paragraphs, a half page of this brochure, one cannot get  
11 into the specifics of genetic damage or the entire  
12 educational gamut of, shall we say, the carcinogenesis  
13 factors associated with radiation. The specific syndrome we  
14 were talking about was changes in the blood system that are  
15 clinically detectable.

16 Q Is that all the somatic effects that you might see  
17 in a sensitive population at 25,000 millirems?

18 A (WITNESS BAEHR) No, they are not all, but from  
19 the standpoint of data that is available to date, it is my  
20 belief and understanding that below 14 R, generally these  
21 effects are not only heroic to determine in a large  
22 population, but are almost impossible to see due to natural  
23 variations in the population.

24 Q What about between 14 and 25 rems?

25 A (WITNESS BAEHR) Between 14 and 25 the probability



1 is there may be some. However, the probability is low.

2 Q But aren't we talking about in a sensitive section  
3 of the affected population that would receive 25 rems,  
4 aren't we talking about seeing signs of radiation sickness  
5 such as nausea?

6 A (WITNESS BAEHR) No.

7 By the way, I will give you two fine references  
8 that maybe you should look into. One is Introduction to  
9 Health Physics by Herman Simber, 1978. It is be the  
10 Pergaman Press, and I believe that they do a very adequate  
11 job discussing the biological effects of radiation.

12 Q Thank you.

13 Ms. McSwain, was it your decision in terms of the  
14 tone of which this brochure took, or was there some  
15 corporate discussion prior to your sitting down and drawing  
16 the first draft?

17 A (WITNESS MC SWAIN) I suppose that it was more my  
18 decision.

19 Q And then after the first draft, what were the  
20 discussions that ensued as far as revisions went?

21 A (WITNESS MC SWAIN) Well, there were a number of  
22 people who were consulted at several stages along the way.

23 Q Did anyone ever say that the brochure looked like  
24 it was a little too critical of the company?

25 A (WITNESS MC SWAIN) No.

1 Q Did anyone ever say that the brochure looked like  
2 it was a little too uncritical of radiation exposure?

3 A (WITNESS MC SWAIN) I think I heard that comment  
4 from someone associated with you later on.

5 Q I see.

6 In the body of the copy of the brochure under  
7 "What about radiation?" you mention that exposure to  
8 extremely large amounts of radiation can be harmful.

9 Is that right?

10 A (WITNESS MC SWAIN) Yes.

11 Q Is it then your position that exposure to less  
12 than extremely large amounts of radiation are harmless?

13 A (WITNESS MC SWAIN) I do not think it said that.

14 Q Okay.

15 And it appears that there is some implication here  
16 that the small amount of radiation given off during the  
17 normal operation of a nuclear plant is harmless.

18 Is that a fair inference?

19 A (WITNESS MC SWAIN) I think that the gist of that  
20 was to compare that amount with other substances in the  
21 environment and to give them some sort of frame of reference  
22 for that amount in comparison to something that was more  
23 familiar.

24 Q And in the next paragraph there is reference to a  
25 chest x-ray, and would it be fair to infer that from this

1 brochure that we could infer that a chest x-ray poses no  
2 health threat?

3 A (WITNESS MC SWAIN) I do not think the brochure  
4 says that either.

5 Q And the section "What about a radiation accident  
6 like the one at Three Mile Island?" you mentioned that the  
7 maximum anyone could have received was 70 millirems.

8 A (WITNESS MC SWAIN) Yes.

9 Q Is that right?

10 And one could infer from the fact that you say  
11 that 25,000 millirems is the level at which health effects  
12 can be detected, that there was nothing deleterious to  
13 anyone's health around Three Mile Island, is that right?

14 A (WITNESS MC SWAIN) Well, the reference that I  
15 used for that figure was the Kemeney Commission Report, and  
16 their conclusion was that the principal effect from Three  
17 Mile Island was stress, not a radiological problem.

18 Q Did you mention that stress in the brochure?

19 A (WITNESS MC SWAIN) No, I did not. It was  
20 discussing radiation at that point.

21 Q Now, do you feel that there is a healthy level of  
22 stress that prepares people for the possibility of being  
23 able to deal with an emergency?

24 A (WITNESS MC SWAIN) No, I think the purpose of the  
25 brochure was to educate the public and hopefully relieve

1 some of that stress.

2 Q In relieving that stress, do you think that  
3 perhaps the brochure actually played down the significance  
4 of radiation hazards?

5 A (WITNESS MC SWAIN) Do I personally believe that?

6 Q Yes, ma'am.

7 A (WITNESS MC SWAIN) Is that the question? No, I  
8 do not.

9 Q The inclusion of the natural background radiation  
10 in parts of Brazil, I notice Mr. Baehr said there was little  
11 room in the brochure, so obviously this is a very  
12 significant inclusion.

13 What is the significance of the fact that in some  
14 parts of Brazil there is 13,000 millirems?

15 A (WITNESS MC SWAIN) Well, I think the general idea  
16 in putting that in there was to show that larger amounts of  
17 radiation that are natural in South Carolina occur in other  
18 parts of the world with no apparent effect on that  
19 population.

20 Q Now, in the state plan we see some sample releases  
21 for the public, public information releases that would be  
22 broadcast over the air.

23 Are you familiar with some of those?

24 A (WITNESS MC SWAIN) Those are done by state  
25 representatives.

1 Q There is a blank in those announcements where you  
2 would read in how many --

3 A (WITNESS MC SWAIN) I am not familiar with those  
4 announcements other than having heard them read.

5 Q But there is a place in those announcements where  
6 the announcer could say that 1000 millirems of radiation had  
7 been released from the V. C. Summer plant, advising people  
8 to take protective actions.

9 Now, would it be fair to infer that if someone  
10 read this brochure, that their stress would be so relieved  
11 that they might not take protective action?

12 A (WITNESS MC SWAIN) I seriously doubt that.

13 Q I see.

14 The schematic of the nuclear operation in the  
15 first section, "How does this station work?" who is  
16 responsible for that?

17 A (WITNESS MC SWAIN) We had an agency that helped  
18 with that, a professional group.

19 Q And who is that?

20 A (WITNESS MC SWAIN) Ray Ward Agency in Charlotte,  
21 North Carolina.

22 Q Ward?

23 A (WITNESS MC SWAIN) Ray Ward, yes.

24 Q Ms. McSwain, is the statement that, in the fourth  
25 paragraph, the uncontaminated water in the second loop is

1 converted to steam, is that a fair technical and scientific  
2 assessment that the water in the second loop remains  
3 uncontaminated?

4       A       (WITNESS MC SWAIN) If you want a technical  
5 assessment of that statement, you will have to ask Mr.  
6 Warner.

7       Q       All right, Mr. Warner.

8       A       (WITNESS WARNER) I would say when you are trying  
9 to balance the educational level that exists in the area,  
10 maybe from an engineer's standpoint the word "totally  
11 uncontaminated" is not technically absolutely correct, but I  
12 think if you added the word "relatively uncontaminated in  
13 relationship to the primary loop," that that is most  
14 definitely a correct statement.

15       Q       And then in the next paragraph, would the same  
16 balance be applied to the statement, "pollution-free steam  
17 is then condensed into water by the cooling water?"

18       A       (WITNESS WARNER) That is true.

19       Q       And that in actuality, if you were being very  
20 finite, it would not be pollution-free?

21       A       (WITNESS WARNER) That is true. In actuality the  
22 water you get out of your water faucet out there is not  
23 pollution-free.

24       Q       Have you seen the letter from the Federal  
25 Emergency Management Agency that said we defer to the

1 Nuclear Regulatory Commission on contamination levels in the  
2 secondary loop, but we believe the utility overstates the  
3 level of cleanliness?

4           Have you seen that letter?

5           A     (WITNESS WARNER) I believe I have seen something  
6 along those lines, yes.

7           Q     Well, would you care to respond to that?

8           A     (WITNESS WARNER) I think I just have. The word  
9 "relatively" would be a more correct statement from an  
10 engineering standpoint.

11           I will recommend that in any redraft of this  
12 brochure.

13           Q     Now, Ms. McSwain, in your prefiled summary you  
14 have already identified some areas of revision, the first  
15 being emergency instructions will be presented in the  
16 beginning of the brochure.

17           Can you expand on that a little bit?

18           A     (WITNESS MC SWAIN) Well, as you know, in this  
19 particular brochure we talked about how the plant works and  
20 radiation radiation before we got to actual, specific  
21 instructions on what to do. I think we will reverse that  
22 order.

23           Q     Let me ask you if any of the points that I have  
24 touched on about the question of the safety level at 20,000  
25 MR, is that going to be included in the next brochure?

1           A       (WITNESS MC SWAIN) I think you can see that we  
2 have stated that the chart would be revised.

3                   Now, exactly which revisions that will be, that  
4 has not been determined.

5           Q       In regards to the notification, the "How will I be  
6 notified?" section, is the mention of if there is a serious  
7 situation developed that threatens public safety, a siren  
8 will sound, is that adequate? Is that going to remain like  
9 that in the next brochure?

10          A       (WITNESS MC SWAIN) The siren is now being  
11 installed, and we will have a better idea of what they sound  
12 like, and I think we can perhaps describe them somewhat  
13 better than this.

14          Q       Does the NUREG mention a specific sound or length  
15 of sound, duration of sound that might be included in the  
16 next brochure?

17          A       (WITNESS BEALE) Yes. I can answer that. We are  
18 planning on having a siren signal that will be in the  
19 terminology of three minutes in length, and more than  
20 likely, something of that nature will go in the brochure.

21          Q       And when do you anticipate these sirens to be  
22 functional?

23          A       (WITNESS BEALE) It is anticipated I think by  
24 September to have them completely installed and tested.

25          Q       September '81?



1 A (WITNESS BEALE) That is correct.

2 Q And before the sirens, your sirens are operable, I  
3 understand you are going to rely on the sirens of emergency  
4 vehicles in the counties.

5 A (WITNESS BEALE) Well, the primary means of  
6 notification or alerting the public will be the siren  
7 system. The emergency vehicles will be used as a back-up  
8 means for any purpose needed by the local county governments  
9 in a case a siren system would be inoperable.

10 Q How have these brochures been distributed to the  
11 public in the 10 mile zone?

12 A (WITNESS MC SWAIN) They were directly mailed to  
13 the residences within that area.

14 Q And that has assured you that everyone in the area  
15 comprehends, not only has received one, but comprehends it.

16 A (WITNESS MC SWAIN) We have not as yet conducted  
17 any study to see whether or not they comprehend it.

18 Q And what other means of public education other  
19 than the brochure about emergency plans do you anticipate  
20 using in the ten mile zone?

21 A (WITNESS MC SWAIN) We anticipate there will be  
22 other means, particularly meetings with the towns in the  
23 area, and hopefully we will be invited to talk to some of  
24 the schools and civic clubs in that area which will also help  
25 to give out this type of information.

1 Q And do you plan to do door-to-door educational  
2 surveys?

3 A (WITNESS MC SWAIN) Not at this moment, no.

4 Q Do you know if any of the counties plan to do that?

5 A (WITNESS MC SWAIN) Mr. Beale maybe can answer  
6 that.

7 A (WITNESS BEALE) None that I am aware of.

8 Q Have you done a study to indicate, an independent  
9 study to indicate how many of the residents in the area do  
10 not have their own transportation?

11 A (WITNESS BEALE) No. The company has not called  
12 upon an independent survey of the area for the personnel or  
13 people needing transportation. I know that the counties  
14 have been involved i that.

15 Q Can you be more specific as to what counties and  
16 what they have learned, because I am not sure that I recall  
17 that from the testimony of the county directors.

18 A (WITNESS BEALE) Well, from my understanding, I  
19 know that Fairfield County has taken upon themselves to try  
20 to locate these type of people, and I think the other  
21 counties are actively engaged in trying to locate these  
22 people. Possibly Fairfield County has been more involved in  
23 trying to get those type of identification of those people.

24 CHAIRMAN GROSSMAN: Mr. Bursey, I understand that  
25 this is he brochure panel, and Mr. Beale will be back with

1 the emergency planning panel. We have no objection to your  
2 asking general emergency planning questions of Mr. Beale.  
3 However, you might be better advised to hold the questions  
4 until later in case there are other views on the matter that  
5 other people on the later panel could supply.

6 MR. BURSEY: Yes, sir. There are some points  
7 where they kind of cross over here. I will try and restrict  
8 it.

9 CHAIRMAN GROSSMAN: That is your option. If you  
10 want to direct questions to Mr. Beale on the other area, you  
11 are welcome to unless there is an objection.

12 MR. KNOTTS: No objection. I am also willing to  
13 put Mr. Beale's prefiled testimony on at this time because,  
14 among other things, it does mention the information. It  
15 crosses over into the brochure area, too.

16 MR. BURSEY: I have no objections to Mr. Beale's  
17 testimony being introduced.

18 (Counsel handing document to Board and parties.)

19 DIREC EXAMINATION -- Resumed

20 BY MR. KNOTTS:

21 Q Mr. Beale, have you prepared a statement, a  
22 prefiled testimony for use in this proceeding?

23 A (WITNESS BEALE) Yes, sir.

24 Q And does that statement differ somewhat from the  
25 prefiled testimony in that the references to Fairfield

1 United Action Contentions have been eliminated?

2 A (WITNESS BEALE) That is correct.

3 Q Are there any corrections or additions that you  
4 wish to make in your prefiled testimony?

5 A (WITNESS BEALE) Yes, sir.

6 MR. KNOTTS: Do the Board and parties have copies  
7 now?

8 CHAIRMAN GROSSMAN: Yes.

9 MR. KNOTTS: All right.

10 BY MR. KNOTTS: (Resuming)

11 Q Would you tell us where the corrections are, Mr.  
12 Beale, please?

13 A (WITNESS BEALE) Okay, first on page 1, the first  
14 page, the first line, strike the letter "K" and insert  
15 "Kenneth."

16 On page 2, the first sentence, strike "specific"  
17 and add after the word "activities," "leading to current  
18 preparedness."

19 Q Would you capitalize the "e" in emergency?

20 A (WITNESS BEALE) That is correct. Excuse me.

21 Q Okay.

22 A (WITNESS BEALE) Page 5, the second paragraph, the  
23 last sentence of that paragraph, strike after the word "to,"  
24 "the local hospital" and add "Richland Memorial Hospital."

25 Q So strike the words --

1 A (WITNESS BEALE) "The local hospital."

2 Q Right.

3 A (WITNESS BEALE) And add "Richland Memorial  
4 Hospita'."

5 Q I see.

6 A (WITNESS BEALE) Page 5, first full paragraph.

7 Q I see.

8 A (WITNESS BEALE) The last sentence.

9 Also on page 5, the last paragraph, strike the  
10 words in the first sentence "surrounding the Summer  
11 Station," and add "of Fairfield County."

12 Page 6, the second full paragraph, the seventh  
13 line, and the third sentence, after the word "the," add  
14 "published," and after the word "results," "from FEMA and  
15 FRC."

16 In that same paragraph, strike the last sentence  
17 and add the following, "Areas which require some improvement  
18 were identified by SCE&G and the NRC. Action is now under  
19 way to correct these areas."

20 And then finally, on page 10, the second  
21 capitalized heading at the bottom of the page, strike the  
22 words "lack of," and after the word "impaired," "by lack of  
23 vehicles."

24

25

1 Q You say strike "by lack of vehicles"?

2 A (WITNESS BEALE) that is correct.

3 Q Does that complete the corrections, Mr. Beale?

4 A Yes, sir.

5 Q With those corrections, is your prefiled testimony  
6 true and correct?

7 A (WITNESS BEALE) Yes, sir.

8 Q Do you wish to adopt it as part of your testimony  
9 in this proceeding?

10 A (WITNESS BEALE) Yes, sir.

11 MR. KNOTTS: We request that Mr. Beale's prefiled  
12 testimony be received in evidence and bound into the  
13 transcript as if read. I do not want to delay things, but  
14 we will provide an oral summary either now or whenever, if  
15 it is desired.

16 CHAIRMAN GROSSMAN: Mr. Bursey, do you prefer the  
17 oral summary?

18 MR. BURSEY: I would defer the oral summary. I  
19 would also -- I am not sure myself. Let me ask.

20 VOIR DIRE EXAMINATION

21 BY MR. BURSEY:

22 Q Mr. Beale, in your previous prefiled testimony --  
23 the difference between what you just corrected and your  
24 previous prefiled testimony, the only difference is the  
25 exclusion of the Fairfield United contentions?

1 A (WITNESS BEALE) Could you repeat that?

2 Q The only difference between your previous prefiled  
3 testimony and the prefiled testimony that you just corrected  
4 is the exclusion of the Fairfield United contentions?

5 A (WITNESS BEALE) That is correct.

6 DIRECT EXAMINATION -- RESUMED

7 BY MR. KNOTTS:

8 Q Stated another way, if I can put it another way,  
9 Mr. Beale, is it correct that all of the places where there  
10 were headings for Fairfield United Action contentions, those  
11 headings are gone?

12 A (WITNESS BEALE) That is correct.

13 Q And that in many cases, but not all, the substance  
14 of your comments on a Fairfield United Action contention are  
15 gone or edited out?

16 A (WITNESS BEALE) That is correct.

17 Q There is nothing added to your testimony? There  
18 is nothing in your testimony that was not in your original  
19 prefiled testimony?

20 A (WITNESS BEALE) Not to my knowledge, other than  
21 the corrections I have just stated.

22 Q And the insertion of headings to replace the  
23 contentions?

24 A (WITNESS BEALE) Correct.

25 MR. BURSEY: Judge Grossman, what I propose is we

1 continue with the brochure panel. When we finish, we can  
2 take a break and allow me to compare my notes.

3 CHAIRMAN GROSSMAN: I was going to suggest that.  
4 But I believe we ought to have the summary before we do  
5 that, unless you prefer to go over it without having this  
6 summary. What is your preference, Mr. Bursey? Do you  
7 prefer to --

8 MR. BURSEY: I would prefer to finish the  
9 brochure, take a break, and then come back and do the  
10 summary, because I may have no substantive objections. It  
11 is just difficult, what I have been reviewing, and I am  
12 concerned. I want to stop.

13 CHAIRMAN GROSSMAN: I have compared the two and I  
14 notice that there is a total revamping of what was done. It  
15 may all be paraphrased and just omissions without any  
16 additions in there, but I am not certain about it either.  
17 So I think we should have that break.

18 MR. KNOTTS: That is perfectly agreeable to me.  
19 The reason I suggested we put Mr. Beale's testimony in at  
20 this time is I want to draw your attention in particular to  
21 page 9, where he refers to distribution of informational  
22 materials.

23 BY MR. KNOTTS: (Resuming)

24 Q Do you recall, Mr. Beale, is there any other place  
25 in your prefiled testimony where you address the brochure or



1 matters related to your brochure?

2 A (WITNESS BEALE) No.

3 Q That is it?

4 A (WITNESS BEALE) Yes.

5 CHAIRMAN GROSSMAN: Mr. Bursey, do you want to  
6 take a moment to look over page 9?

7 MR. BURSEY: I am familiar with it. We will just  
8 proceed with the brochure discussion.

9 CROSS-EXAMINATION -- RESUMED

10 BY MR. BURSEY:

11 Q Ms. McSwain, are you familiar with the federally  
12 regulated level of safe exposure to the public on a  
13 quarterly basis?

14 A (WITNESS McSWAIN) I think that Mr. Baehr could  
15 answer that better than I could.

16 Q All right.

17 A (WITNESS BAEHR) Yes, I am.

18 Q Can you tell me what it is?

19 A (WITNESS BAEHR) 170 millirem per year divided by  
20 4.

21 Q 170?

22 A (WITNESS BAEHR) Millirem per year, divided by  
23 four.

24 Q And in any quarter?

25 A (WITNESS BAEHR) Divide 170 by four.

1 Q Yes, sir. And what does that come out to?

2 A (WITNESS BAEHR) 42.5.

3 Q And that 42.5 millirems that the Federal  
4 Government guidelines recommend that public exposures be  
5 restricted below, wouldn't that be a better level for your  
6 brochure to reflect than the 25,000 millirems?

7 A (WITNESS BAEHR) Once again, we have to look at  
8 the purpose for the brochure. If we were going to discuss  
9 federal standards which have in them the rightful  
10 conservatism of assumptions, then possibly. But what we  
11 were speaking of, once again, was acute somatic  
12 instantaneous determinable through normal clinical means  
13 health effects to individuals.

14 Q And you think that that is the extent of your  
15 responsibility in terms of educating the public about  
16 radiation and impacts, is acute immediately measurable  
17 somatic --

18 A (WITNESS BAEHR) For the purposes of an emergency  
19 planning brochure, where I am sure less than one-tenth of  
20 the total information presented on a -- what size is this,  
21 10 by 20-inch brochure -- one is very limited as to how much  
22 information can be placed on the brochure.

23 Secondly, there is once again a concern for the  
24 ability of the public to fully discern the issues that can  
25 be brought up and discussed in various areas of radiation

1 exposure. Once again, at Three Mile Island the predominant  
2 effect was one of stress and overstatement. I think this  
3 tendency has caused undue fear in a lot of individuals.

4 Q And you would agree that there needs to be a  
5 balance in that stress whereas the individuals are not  
6 lulled into some false sense of complacency?

7 A (WITNESS BAEHR) That is correct.

8 Q And --

9 A (WITNESS BAEHR) I will say this: A false sense  
10 of complacency or not, I believe that when our general  
11 public hears sirens that that very probably will have more  
12 effect than a brochure that they may or may not have read  
13 the health effects section of.

14 Q Regardless of whether the public reads it or not,  
15 you would agree that the company has a responsibility to  
16 provide educational information to said public about the  
17 effects that they could anticipate that they may be exposed  
18 to as the result of an accident at the V.C. Summer plant?

19 A (WITNESS BAEHR) Yes, within the constraints, once  
20 again, of the public's ability, educational level and  
21 ability to understand the information presented.

22 Q Do you know, Mr. Baehr, what the educational level  
23 is on an average for the population of Fairfield County?

24 A (WITNESS BAEHR) I would not even hazard a guess,  
25 but I am sure it is well below high school.

1 Q Would you be surprised if it was 8.5 years of  
2 schooling?

3 A (WITNESS BAEHR) No, I would not be surprised.

4 Q Was this brochure designed to be able to get its  
5 points across to people with an eighth grade education?

6 A (WITNESS BAEHR) I believe moreso than a rigorous  
7 scientific treatment of latent somatic effects fraught with  
8 probabilistic assumptions, yes.

9 Q Has anyone suggested latent and probabilistic  
10 inclusions in your brochure?

11 A (WITNESS BAEHR) To my knowledge, I do not know of  
12 any.

13 A (WITNESS WARNER) Can I speak a little bit to that  
14 question? We are not trying to say there are no health  
15 effects whatsoever. We are trying to get people to  
16 reasonably judge a risk versus benefit. We are not saying  
17 there is no risk.

18 What we are saying is, here are points of  
19 reference, here are numbers and a chart; you can judge for  
20 yourself whether you think they are hazardous or not. We  
21 are not telling you that they are not hazardous. That is  
22 our main point.

23 Also, this is not our only source of information  
24 on health effects. We purchased 10,000 copies of the  
25 International Atomic Energy Agency booklet. We have not

1 distributed it to everybody, but it is available to anybody  
2 right now and maybe we will come up with a distribution  
3 method. It is a basic primer.

4 Our main purpose, although we do have some health  
5 effects things in here, something about radiation, something  
6 about the plant works -- those are all minor. Our major  
7 purpose is for -- to tell people what happens when a siren  
8 goes off: Don't run out of the place, go turn on your  
9 radio. This is the one big point we want to get across.

10 Now, there is a lot of other information that goes  
11 along with this, but that is the major point. And we are  
12 going to work very hard on trying to highlight those  
13 portions of it. And we may eliminate either in part or in  
14 whole some of the other informational types of information  
15 there and may go to more booklet-oriented formats. Those  
16 decisions have not been made yet.

17 Q Yes, sir. Thank you.

18 Would you argue in this revised brochure that we  
19 are hypothetically discussing here for the inclusion of the  
20 25,000 millirem level here, Mr. Warner?

21 A (WITNESS WARNER) My training would agree with the  
22 25,000 millirem level. The American Nuclear Society's book,  
23 "Questions and Answers," has a 50,000 level. We took the  
24 most conservative value that we saw in the volume of  
25 literature.

1           That does not mean that there are not exceptions  
2 in people's views, but this is what we considered to be  
3 reasonable. And we considered that a low level of radiation  
4 and we listed levels below that and we said "detected."  
5 That does not mean that you would not have some effect, but  
6 being able to detect it would be nearly impossible.

7           Q     Well, do you individually or the company as a  
8 corporation take issue with the federal standards of 42.5  
9 MR?

10          A     (WITNESS BAEHR) No, we do not.

11          Q     Ms. McSwain, what if I do have to evacuate and  
12 there is no radio in my house? I mean, do you have some  
13 understanding of how many radios are available in the  
14 ten-mile zone to people?

15          A     (WITNESS McSWAIN) I have not taken that survey,  
16 no.

17          Q     Are you going to suggest that such a survey be  
18 taken?

19          A     (WITNESS McSWAIN) Well, I would think that most  
20 people who do not have their own radio would know where  
21 there is one close by.

22          Q     The form that this pamphlet takes in regards to  
23 its being readily available in the event of an emergency,  
24 has there been some discussion of making this brochure  
25 something that is going to be more in the public's eye than

1 it exists? I mean, what discussions have you had along that  
2 line?

3 A (WITNESS McSWAIN) I am not sure what you mean,  
4 "more in the public's eye."

5 Q Something that would keep the brochure more  
6 prominent in someone's home.

7 A (WITNESS McSWAIN) We ask everybody to keep it and  
8 clip it to their phone book.

9 Q Have there been any discussions about making it --  
10 putting some adhesive on it where it could be posted or  
11 anything of that nature?

12 A (WITNESS McSWAIN) It has been discussed.

13 Q But there have been no suggestions for the  
14 revision?

15 A (WITNESS McSWAIN) It has not been stated that we  
16 would do that, no.

17 Q Now, on the map on the back of the brochure, who  
18 compiled these primary evacuation routes?

19 A (WITNESS BEALE) I did.

20 Q Mr. Beale, did you work with any state or county  
21 agencies in compiling this?

22 A (WITNESS BEALE) The state and county agencies  
23 reviewed the brochure before it was printed. Also, I had  
24 discussions with them on the evacuation routes.

25 Q What state agency was that, Mr. Beale?

1           A       (WITNESS BEALE) Emergency Preparedness Division,  
2 Adjutant General's Office.

3           Q       And it has been your conclusion -- obviously it  
4 was your conclusion at the time -- do you still feel that  
5 having a specific route for people to take is a good idea?

6           A       (WITNESS BEALE) Yes.

7           Q       Are you aware that the highway patrol disagrees  
8 with that?

9           A       (WITNESS BEALE) Well, if I recollect the  
10 testimony of the highway patrol, they had indicated that  
11 they had specific routes that they have set up for an  
12 emergency. I think in reference to specific routes, I know  
13 if I were the general public out there I would want to know  
14 which route that I should take from leaving my house.

15                   So I think from the standpoint of the highway  
16 patrol they have specific procedures for evacuation routes,  
17 and it must be understood that their evacuation routes  
18 generally cover from the ten-mile up to the reception  
19 centers.

20          Q       And so you do not feel it would cause undue  
21 confusion for the people that had in mind an evacuation  
22 route and due to weather changes they might be told to go  
23 the exact opposite way, and that that might lead to their  
24 confusion and actually their choice to ignore the guidance?

25          A       (WITNESS BEALE) Well, I do not think they are



1 going to ignore the guidance, first of all. The information  
2 that is given over the radio will instruct the public on  
3 which sectors to be evacuated and which routes they are to  
4 take. From the brochures they should be able to follow  
5 that.

6 Now, in our earlier statement by Ms. McSwain, she  
7 indicated that we are going in the next revision to revise  
8 the evacuation routes. It is to some degree -- we put on  
9 county roads and it maybe to some people is confusing.

10 We worked very closely with Wilbur Smith &  
11 Associates, who did the evacuation time estimates. They had  
12 in their assessments gone into much more specific detail on  
13 routes of getting people out for evacuation time  
14 assessments. We worked with them and from that came up with  
15 the evacuation routes you see in front of you.

16 We are planning on looking into, for the next  
17 revision, to make it more simplified to the general public  
18 so that they will not get confused in some of these  
19 secondary roads, because a lot of these county roads are by  
20 the general public, are not known as a numerical number.  
21 Usually they are known as a Jones Road or Church Road. So  
22 we are going to primarily hit, in the revised revision, the  
23 major roads.

24 Q What radius around the plant would the revised map  
25 include?

1           A       (WITNESS McSWAIN) I think I stated yesterday it  
2 would be a larger map that would include the reception  
3 zones.

4           Q       In your summary yesterday it said that the  
5 two-mile area around the Summer station will be identified  
6 with a sector designation. What does that mean?

7           A       (WITNESS McSWAIN) Well, if you will look at the  
8 map there, you see the plant. You will see a beige looking  
9 area around that that has no sector designation. The reason  
10 for that, when we were doing this, was that that area was  
11 going to be evacuated early by the highway patrol. But we  
12 found out in the drill that we needed to have something to  
13 call it by.

14                   (Pause.)

15          Q       The ten-mile radius, the EPZ, was the company  
16 involved in determining the boundaries for the EPZ?

17          A       (WITNESS BEALE) As far as from the standpoint of  
18 the site specific boundaries, the geographical boundaries  
19 that we now have for the Summer station? Are you talking in  
20 reference to the ten-mile point?

21          Q       I am not talking about the NUREG suggestion.

22          A       (WITNESS BEALE) Okay.

23          Q       I am talking about in actuality, when we have a  
24 line let's say at Fairfield County that makes a little bump,  
25 were you consulted about that variance in the line?

1           A       (WITNESS BEALE) That determination was made by  
2 the Emergency Preparedness Division of the Adjutant  
3 General's Office.

4           Q       And so you had no input into the inclusion or  
5 exclusion of certain geographical areas in the ten-mile  
6 zone?

7           A       (WITNESS BEALE) I am sure we could have made some  
8 comment. But from the standpoint -- it was pretty much  
9 determined by the state.

10          Q       And Mr. Beale, is it fair then to summarize your  
11 company's responsibility for notification of people in the  
12 ten-mile zone as limited solely to your siren system?

13          A       (WITNESS BEALE) Well, it depends on your  
14 definition of "notification." There are other ways of  
15 notifying the people, but the primary method for  
16 notification in the ten-mile area is the sirens. The  
17 primary purpose of the sirens is to notify and alert the  
18 public within the ten-mile area.

19          Q       The only requirement actually that the company has  
20 beyond the plant boundary is that primary initial  
21 notification, is that right?

22          A       (WITNESS BEALE) No, it is really not the  
23 responsibility or requirement of the utility to notify  
24 those people. That is a local and state responsibility.  
25 SCE&G purchased the siren system for installation around the

1 site for the counties and the state. It is their  
2 responsibility to determine the notification, activation of  
3 the sirens.

4 Q Well, Mr. Beale, do you think that it is part of  
5 your mandated responsibility to educate people about  
6 radiation effects in that ten-mile zone?

7 A (WITNESS BEALE) Absolutely.

8 Q And would you agree that people are going to be  
9 able to react in a safer and more adequate fashion if they  
10 understand that there is at least some potential for a  
11 life-threatening situation there?

12 A (WITNESS BEALE) Well, I think it would help  
13 better educate them to know that, and I think in my own  
14 opinion in the brochure that we have done that.

15 Q You do not think that the brochure minimizes those  
16 threats?

17 A (WITNESS BEALE) No, I do not.

18 Q And as an emergency planner you know that people  
19 need to have some comprehension of the threat they face in  
20 order to reasonably adequately and responsibly deal with  
21 it?

22 A (WITNESS BEALE) I do not think it is necessary  
23 that they know. There are a lot of things that myself, in  
24 an emergency situation, that I do not all-inclusively know  
25 about. But if I am instructed to do or take upon myself

1 actions to remove my family, I will do it.

2 (Pause.)

3 Q Ms. McSwain, have you had any discussions about  
4 the question of shelter, seeking shelter as part of your  
5 emergency actions, either to run and hide in the shelter  
6 that is mentioned in the brochure, to remain indoors a while  
7 and close your windows and turn your air conditioners off?  
8 Do you have some revisions that we might see in the next  
9 --

10 A (WITNESS McSWAIN) I think the wording says that  
11 you may be asked to do that. I think if you read back it  
12 says that you will be told what to do by an emergency  
13 broadcast message, and after that it says these instructions  
14 may be.

15 Q Have you discussed the inclusion of any  
16 respiratory advice in the next enclosure?

17 A (WITNESS McSWAIN) Yes, we have.

18 Q And what might that be?

19 A (WITNESS McSWAIN) At the moment the respiratory  
20 advice in there is primarily that you should shut off any  
21 outside air. I think perhaps in the revision it may be  
22 something in there included as to, if you had to go outside  
23 to get in your car to evacuate, for instance, that you cover  
24 your face with a handkerchief and that you keep the vents  
25 closed in the car while you are leaving.

1 Q Would there be any decontamination advice, such as  
2 showers or washing of food or anything like that?

3 A (WITNESS McSWAIN) That kind of advice or  
4 instruction is given to the people when they reach the  
5 reception center.

6 Q The far column on the brochure, far right column,  
7 has one section that is in type that is larger than any  
8 other type: "When you leave your home, tie a white  
9 handkerchief," et cetera. Is that a reasonable focus? I  
10 mean, I assume it is larger than anything else because it is  
11 the most important part. Would you agree with that?

12 A (WITNESS McSWAIN) Perhaps if that is the case  
13 then it should not be in all caps.

14 A (WITNESS BEALE) I think I might comment on that.  
15 I think too that it is important from a planning standpoint,  
16 and I think one of the reasons that maybe it is in capital  
17 letters is it is vitally important, if we ever evacuate an  
18 area, to have a quick and ready means of assuring that the  
19 public has evacuated that area. It becomes very important  
20 if evacuation comes about for local and state law  
21 enforcement people to in a speedy manner determine if those  
22 people have evacuated.

23 From a planning standpoint it would be important  
24 that that type of operation as suggested in the brochure  
25 take place. But as Ms. McSwain indicated, it probably is

1 out of line in being capitalized in the brochure now as it  
2 stands. I am sure in the next revision we will also  
3 identify the importance of it, as I have indicated.

4 Q But getting them out is more important than --

5 A (WITNESS BEALE) Oh, absolutely.

6 MR. BURSEY: Well, Judge Grossman, I certainly  
7 have some disagreements with the points we have gone over,  
8 but I think that I have covered them sufficiently for the  
9 Board to draw their own conclusions.

10 CHAIRMAN GROSSMAN: Mr. Goldberg?

11 MR. GOLDBERG: No questions.

12 CHAIRMAN GROSSMAN: Mr. Wilson?

13 MR. WILSON: Thank you, Mr. Chairman.

14 BY MR. WILSON:

15 Q Mr. Beale, let me, since we are basically in the  
16 same area here, these sirens you just mentioned, is there  
17 any effort planned to familiarize the residents in the area  
18 with the particular sound of these emergency warning  
19 devices, these sirens, versus others like volunteer fire  
20 department sirens which they may hear more commonly?

21 A (WITNESS BEALE) That is correct, yes, sir.

22 Q And what distinctions do you intend to incorporate  
23 into that system?

24 A (WITNESS BEALE) Well, that was the real purpose  
25 of why in the NUREG it indicates a three-minute solid blast

1 sound. It is a unique type of signal that they have  
2 determined. There are other signals civil defense uses for  
3 emergency situations, such as for a fire type of situation.  
4 But we do plan on educating.

5 I think that was one of the things that Ms.  
6 McSwain indicated, of other means that we wanted to, either  
7 by town meeting or civic clubs or any type of additional  
8 education or information to the public, to better educate  
9 the public on their role in an emergency.

10 Q Do you plan any actual tests or anything to  
11 familiarize them with it? I mean, other than these meetings  
12 you are talking about? I mean, actually sounding the  
13 sirens?

14 A (WITNESS BEALE) The sirens have a specific  
15 surveillance or testing program that we have identified.  
16 They will be tested on a quarterly basis and then a full  
17 activation annually.

18 Now, we do plan on informing the public on what  
19 these sirens sounds -- and of course, during the testing  
20 phase they will be, I am sure, aware of what those are.

21 Q Have you made any plans to perhaps give these  
22 people notification in advance that you are going to be  
23 testing, so that they can be on the alert, rather than  
24 simply --

25 A (WITNESS BEALE) Yes. Probably Becky can respond



1 to that.

2       A       (WITNESS McSWAIN) It is my understanding the  
3 first siren has just been installed and we are in the  
4 process right now of developing a news release to let the  
5 people know it is going to be sounded and what it will sound  
6 like.

7       Q       Might it not be helpful to, when you are revising  
8 the brochure, to perhaps place something on the emergency  
9 information side of the thing, where you have the evacuation  
10 routes, such as identifying the siren saying, when you hear  
11 a three-minute long blast from the sirens here is what you  
12 do?

13       A       (WITNESS McSWAIN) I think if you will read the  
14 comments that we made yesterday as to what we are going to  
15 do with the revision, it said we were going to have a more  
16 simple format for those instructions.

17       Q       I am talking about adding to the format, not  
18 simplifying. Really, where you -- I guess maybe it is  
19 simplification overall if you put --

20       A       (WITNESS McSWAIN) Rather than a paragraph, it  
21 will be something that is simpler style.

22       Q       All right. Mr. Beale, we were talking about -- I  
23 think maybe this may be Ms. McSwain too -- but the  
24 information on the handkerchief, tying that on the front  
25 door, who is that intended to protect? Is that the law

1 enforcement officer exposures or saving time, energy, what?

2       A       (WITNESS BEALE) No. The intent is, if we have an  
3 emergency situation at Summer and an evacuation is directed  
4 by the Governor and we, let's say, evacuate four miles  
5 around the plant, it is very important that we, not only  
6 from the utility standpoint but from the state, to assure  
7 that everyone has been evacuated. So that is the real  
8 purpose of that statement, to be able to assist the local  
9 and state law enforcement to identify that those people have  
10 truly evacuated, other than going door to door.

11       Q       All right. Might it not also be helpful to  
12 include that information on the emergency side of the  
13 particular brochure that may be in the residents'  
14 possession?

15       A       (WITNESS BEALE) That could be done, and that is  
16 part of, I think, what Ms. McSwain indicated in the  
17 revision. The intent is to try to simplify the brochure as  
18 much as possible to the public so that it would be easy to  
19 comprehend and to fulfil their role during the emergency.

20       Q       Ms. McSwain, might it not also be helpful in these  
21 revisions, when you do make them, if you include a  
22 statement, when you hear a three-minute long siren blast  
23 turn your radio to these stations, instead of having to read  
24 through?

25       A       (WITNESS McSWAIN) One suggestion was the EBS

1 stations be put there near the map.

2 Q When is the next revision due out? Do you have  
3 any projected date or are you still in the drafting stages?

4 A (WITNESS McSWAIN) It will be done some time this  
5 fall.

6 Q And how many, approximately how many copies do you  
7 expect to have to distribute?

8 A (WITNESS McSWAIN) I think the last time we  
9 overdid it a little, about 10,000. I think I have about  
10 5,000 of those still in my office. So it would be less than  
11 that.

12 Q I notice we are burning a few of them up in this  
13 hearing, too. Maybe not quite so many now.

14 A (WITNESS BEALE) Was your question specifically  
15 addressed to the number of people for mailing, the  
16 households?

17 Q No, that is my next question.

18 A (WITNESS BEALE) Oh, okay.

19 Q You can go ahead and anticipate it, since that is  
20 it.

21 A (WITNESS BEALE) There are approximately -- I  
22 think the number is about, if my memory is correct, a little  
23 over 2,000 households that we mailed directly.

24 Q Is there any information contained in this  
25 brochure right now indicating how much time would be

1 available to the residents to gather their items and clear  
2 the area?

3       A       (WITNESS McSWAIN) I do not think there is a time  
4 limit on that. They are advised to do it quickly, but  
5 without panic.

6       Q       Are there any -- is there any control that the  
7 company has over the particular radio stations that are part  
8 of the emergency broadcast system for these types of  
9 emergencies? Could that be expanded at the company's  
10 request or is that set by the civil defense folks?

11       A       (WITNESS McSWAIN) We at SCE&G work with WIS, who  
12 is the lead EBS station in this area, and simply got their  
13 consent to do this, to participate in this. At that time it  
14 was the exercise and then in the event of a real emergency.  
15 From there on the state has taken over that function and  
16 they are dealing with EBS.

17       Q       Is the EBS system or the siren system intended to  
18 be used for any other warnings, such as weather or flooding  
19 or anything?

20       A       (WITNESS BEALE) The present -- now as far as --  
21 you asked a two-part question, really. The EBS system  
22 actually is an emergency warning system for any emergency.

23       Q       Right.

24       A       (WITNESS BEALE) The siren systems will be  
25 strictly used for an incident at V.C. Summer.

1 Q Might it be worth considering when you do the  
2 revisions to include maybe, or at least consider including,  
3 some distinction between those two systems in case there is  
4 --

5 A (WITNESS McSWAIN) I think in there we say that  
6 emergency broadcast stations, and then we list radio  
7 stations. So I do not think that that is terribly  
8 confusing, no.

9 Q We had a question a little while back about the  
10 quarterly exposure levels for the general population. Do  
11 you know whether or not, Mr. Beale, those apply in route  
12 operations or accidental or emergency situations?

13 A (WITNESS BEALE) Well, I think Bill probably can  
14 address that and I will let him answer that.

15 Q Fine.

16 A (WITNESS BAEHR) Routine operations from the  
17 standpoint of federal 10 CFR 20 limits.

18 Q Ms. McSwain, the brochure in a number of places  
19 seems to switch back and forth between accident and normal  
20 operational performances and the kinds of responses that are  
21 going to be required and all, and is there any effort  
22 perhaps in this revision that you are undertaking to maybe  
23 group or at least clarify the approach and what information  
24 you are dealing with under normal circumstances versus  
25 emergency circumstances?

1           A       (WITNESS McSWAIN) Well, I think in this  
2 particular brochure, as we said a while ago, we started out  
3 talking about the normal operation of the plant, how it  
4 actually worked. And then we talked about radiation in  
5 terms of normal circumstances and accident circumstances.  
6 From there we went into exclusively accident instructions.

7                   The order of that is going to be reversed, so that  
8 all the emergency instructions, what you do in an emergency,  
9 will be the first thing that people will read and then the  
10 general information will come after that.

11          Q       Okay. Perhaps this is Mr. Baehr again, too. Do  
12 you know how these federal standards are set? That is, is  
13 there a relation between the level and the measurable  
14 effects or what?

15          A       (WITNESS BAEHR) Yes, there is. And the standards  
16 basically, it is my understanding, are set judiciously,  
17 using conservative assumptions and reflect the consensus  
18 opinion of a majority of those people involved and  
19 knowledgeable in health effects.

20          Q       Those conservative assumptions, would it be fair  
21 to say that those are -- or do you know whether those are  
22 approximately one-half to one-tenth of observable effects,  
23 health effects, do you know?

24          A       (WITNESS BAEHR) The limit that we were referring  
25 to in 10 CFR 20, which by the way is not quoted on a

1 quarterly basis, it is quoted on a yearly basis --

2 Q We understand that.

3 A (WITNESS BAEHR) For a member of the general  
4 public. At that level, no documented effects have been  
5 observed.

6 I do not know exactly what you are hunting for.

7 Q Well, I just was wondering if you knew the degree,  
8 had any idea of the degree, the actual degree of  
9 conservatism that is incorporated below the observable  
10 effects?

11 A (WITNESS BAEHR) Well, okay. Also in the  
12 regulations is Part 100, which deals with accidents. And  
13 specifically, plants have to be designed such that under  
14 certain scenarios the accidental one-time public dose limit  
15 of 25,000 millirem whole body dose, whole body exposure, is  
16 set out. Now I would assume that that number has been  
17 chosen directly related to this ability to clinically  
18 observe acute somatic effects.

19 Q Is the answer then basically you do not know?

20 A (WITNESS BAEHR) I do not know on the basis of  
21 having followed the documentation in the standard-setting.

22 Q All right. Finally, Ms. McSwain, are you aware  
23 what there is a substantial segment of the society that is  
24 color blind?

25 A (WITNESS McSWAIN) What do you mean, "a

1 substantial segment"?

2 Q I mean as in a known proportion of the population,  
3 particularly males.

4 A (WITNESS McSWAIN) There is also a known portion  
5 of the population that cannot read.

6 Q That is true. But when we look at your diagram  
7 here and when you begin revising, would it surprise you to  
8 learn that color blind people, red-green color blindness  
9 prevents them from distinguishing between sections D-1 from  
10 D-2, E-1 from E-2, and F-1 from F-2?

11 A (WITNESS McSWAIN) Have you got a better  
12 suggestion?

13 Q Use different colors.

14 A (WITNESS McSWAIN) You mean rather than red and  
15 green?

16 Q More distinct colors, yes. The red and green do  
17 pose problems, and I understand you have some experts who  
18 have been assisting in the drafting of these sort of  
19 graphics. So this may be an area again for improvement  
20 during the revision.

21 A (WITNESS McSWAIN) We can look into that. No, I  
22 had not considered it.

23 MR. WILSON: That is all I have, Mr. Chairman.  
24 Thank you.

25

BOARD EXAMINATION



1 BY CHAIRMAN GROSSMAN:

2 Q Mr. Warner, you indicated that numbers speak for  
3 themselves. I am not sure, though, that when you put a  
4 number of numbers together that they do not imply  
5 something. Certainly there are comparisons that are made  
6 when you have a series of numbers here.

7 Now, don't you -- do you agree with that, sir?

8 A (WITNESS WARNER) I would say that certainly  
9 people make comparisons when they see a group of numbers and  
10 they try to put themselves into that group of numbers. If I  
11 tried to come up with something horrendously or even  
12 moderately a problem down in these levels of radiation, I  
13 think I would have difficulty putting that in there.

14 If I did it in levels of radiation higher than 25  
15 millirem, 25 rem, you know, you would find detectable events  
16 and maybe that is what you are going for. But the choice of  
17 the numbers here, you know, we took some very widely known  
18 numbers, most of them, and laid them out. Most of them came  
19 from a layman's translation of American Nuclear Society's  
20 "Questions and Answers."

21 Maybe we should not have given them any  
22 reference. But this was in a short, concise format  
23 something that they could at least stimulate their interest  
24 and further question that: I didn't know that was that way,  
25 why is it that way and why should I be concerned?

1           We have not answered all those questions, but we  
2 hope to stimulate their answers so that they will ask  
3 further questions.

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1 Q Well, Mr. Warner, I am not sure that people --  
2 that any large proportion of the people that receive these  
3 brochures are going to ask for the questions.

4 Don't you believe that when you give a figure for  
5 natural background radiation, that that suggests that  
6 anything below that amount is not harmful?

7 A (WITNESS WARNER) Not necessarily. I think there  
8 is a great amount of ignorance in the people who live around  
9 their radioactive environment. Maybe we did not put the  
10 radioactive environment of Columbia or South Carolina, which  
11 is about 100, 105 millirem. Maybe that would be a more  
12 appropriate figure there.

13 Q No, that is in there also, sir. It is not just  
14 the 13,000 that is in there, but that 100 is there.

15 A (WITNESS WARNER) We are just trying to show them  
16 that there is natural variation throughout the world. That  
17 does not mean that radiation is not harmful at those  
18 levels. When radiation was first discovered, everybody used  
19 to think, why don't I go bathe in the caves and see if I can  
20 get some of the beneficial results. That is an erroneous  
21 statement in today's viewpoint. And people got overly  
22 exposed. And we are not trying to get that point across.  
23 The point we would like to get across -- and we hope to do  
24 it in redrafting this -- is that there is a risk and benefit  
25 associated with it. We think that the risk is small in

1 relationship to the benefit. But even x-rays, one x-ray,  
2 you have to look at your benefit, you know, am I going to  
3 find out something worthwhile out of that? That does not  
4 mean that we are saying go ahead and get all the x-rays in  
5 the world, you know, up to 25,000 millirem.

6 Q So your answer is you do not believe that putting  
7 in a figure for natural background suggests that anything  
8 below that figure is not harmful? Is that your answer?

9 A (WITNESS WARNER) No, I do not think it suggests  
10 that anything below that is not harmful.

11 Q When you suggest at Figure 4, allowable exposure  
12 for nuclear workers, but omit a figure that is used for the  
13 general public, don't you believe that that by itself  
14 suggests that the figure for the nuclear workers is one that  
15 would also be used for the general public, Mr. Warner?

16 A (WITNESS WARNER) That may be something to  
17 consider, but the regulations -- it is hard -- remember,  
18 this is not my area of expertise, health physics, but it is  
19 very easy to detect a person who is an occupational worker  
20 who has a badge on him to see how much exposure he is  
21 getting. It is very difficult to have any regulatory  
22 control other than from a theoretical aspect on 170 millirem  
23 to the population unless you have an accident of some sort,  
24 and then you could make extrapolations that could be fairly  
25 exact. But through normal operation, you know, I do not

1 know that I see the necessary relevance, but I do not -- I  
2 would not see any harm in putting that kind of number down  
3 there if it was felt that that was an important number as a  
4 point of reference, because that is all this chart is meant  
5 to be, points of reference. I would not relate health  
6 effects to that number.

7 Q Ms. McSwain, do you also agree that the use of  
8 natural background radiation figure does not suggest that  
9 anything below that would not be harmful?

10 A (WITNESS MC SWAIN) I think it does suggest that  
11 something below that should not be cause for alarm or panic.

12 Q Is there anything in here that says anything about  
13 alarm or panic?

14 A (WITNESS MC SWAIN) No. I think that normal  
15 association in people's mind with radiation is alarm.

16 Q And it also is harm, isn't it?

17 A (WITNESS MC SWAIN) Yes.

18 Q Do you also agree that by putting in a figure for  
19 allowable exposure for nuclear workers and omitting a figure  
20 for the general public does not imply that that figure could  
21 also be used for the general public?

22 A (WITNESS MC SWAIN) I think perhaps that your  
23 suggestion is well taken, that the figure for the general  
24 public should be included.

25 Q Do you believe that the statement or the word used

1 can first be detected with reference to the 25,000 millirems  
2 might not or necessarily would not be interpreted as being  
3 detected because of harm to the individual?

4 A (WITNESS MC SWAIN) I am not sure I follow the  
5 question.

6 Q Yes. Okay. It was a very poorly phrased question.

7 Don't you believe that when you state that  
8 something -- that the effects can first be detected at a  
9 certain level, that that does not imply that it could be  
10 detected at that level because that is a level at which  
11 there is harm, that therefore can be detected?

12 A (WITNESS MC SWAIN) Are you saying that we are  
13 suggesting therefore that there is no harm below that?

14 Q Yes. Don't you think that it could be interpreted  
15 as suggesting that there would be no harm below that?

16 A (WITNESS MC SWAIN) It could be interpreted that  
17 way, yes.

18 Q Do you think that would be a fair suggestion to  
19 make to the general public in view of what you have heard  
20 about exposures for the general population?

21 A (WITNESS MC SWAIN) Not being a health physicist,  
22 I am not sure I am the one who should answer that.

23 Q Do you think that is a matter you should look into  
24 further?

25 A (WITNESS MC SWAIN) Perhaps it is, yes.

1 Q Mr. Beale, I am somewhat interested in how that  
2 emergency planning zone was determined, and I believe  
3 because I have some questions in my mind as to locations  
4 that are included in the emergency plan but not included in  
5 the emergency planning zone, that perhaps you have gotten to  
6 the nub of that.

7 From what I understand in your testimony this  
8 morning, the state did not rely upon you in determining the  
9 emergency planning zone, is that correct, sir?

10 A (WITNESS BEALE) I would say that is true, yes.

11 Q However, they did permit you to comment on the  
12 boundaries to be used for the emergency planning zone.

13 A (WITNESS BEALE) Correct.

14 Q We did have some prior testimony with regard to  
15 two schools that were included in the emergency plan but not  
16 the emergency planning zone.

17 Was it the company's suggestion in the first  
18 instance to include those schools in the emergency planning  
19 zone, or did the company just decide that they ought to be  
20 taken into account later on after the emergency planning  
21 zone was determined, or is there some other alternative? I  
22 have only given you two possibilities, but I am suggesting  
23 perhaps it was the timing that was important, or perhaps  
24 there were other factors.

25 Could you elaborate on that?

1           A       (WITNESS BEALE) I think at the time when the  
2 determination of the ten mile radius around the plant, the  
3 zone, the EPZ is determined was generally the tie-in with  
4 geographical boundaries. I do not think that there was some  
5 investigation that a half mile on the other side of the  
6 boundary was a school, or I know as far as an institution,  
7 yes, it was checked into. But as far as -- there was not  
8 specifically a point by the state nor the utility to exclude  
9 these two schools in question that you have addressed.

10                    Later on into the emergency planning, early part  
11 of this year, it was brought up by some of the residents,  
12 and it was determined by the county to include them in the  
13 planning.

14                    It has been my concept all along that in any  
15 emergency situation, that if evacuation beyond the ten miles  
16 is necessary, such as these two schools, that the county's  
17 plans can be implemented to adequately evacuate those  
18 schools.

19                    So I think the concern on my part, and I think  
20 speaking for the company, there was never a concern that  
21 these two schools would be overlooked. There was just the  
22 fact that that the boundary stopped at a point. In some  
23 cases it may be 10.5 miles outside of the ten miles. So it  
24 really was not our backs turned on those two schools for any  
25 particular reason.



1 Q Well, is it too late for the state to change the  
2 emergency planning zone?

3 A (WITNESS BEALE) Not that I am aware of. They can  
4 change it, I am sure, at any time.

5 Q Has the company suggested to the state that the  
6 emergency planning zone be changed to include these schools?

7 A (WITNESS BEALE) Well I think as it stands right  
8 now, that the planning aspects for these two schools have  
9 been incorporated in the county which in question is  
10 Fairfield County. But Fairfield County has stated that they  
11 will include these schools in their planning.

12 All it means is that they have not physically  
13 moved the boundaries to cover these two schools, but they  
14 have said that they would cover them in the planning aspects  
15 in case of an emergency at the Summer.

16 Q But that still does not answer the question as to  
17 whether the company has asked the state to change the EPZ to  
18 include those schools in it.

19 A (WITNESS BEALE) The company to this date has not  
20 requested that of the state, that is correct.

21 Q Isn't it possible that whatever might be the  
22 inclusion of the schools in an emergency plan might be  
23 changed easier -- more easily than if the schools were  
24 included in the emergency planning zone.

25 A (WITNESS BEALE) Could you repeat your question?

1 I did not quite understand it.

2 Q All right, I will repeat it.

3 Isn't it possible that the schools might more  
4 easily be excluded in the future from the emergency plan if  
5 they are not also included in the emergency planning zone?

6 A (WITNESS BEALE) No, I do not agree with that. I  
7 think that the -- if you are suggesting that a year from now  
8 that the county comes up and says no, we are not going to  
9 include them in the planning and exclude them, that is  
10 possible but I think highly improbable that it would happen.

11 Q Well, the question is, isn't it more likely to  
12 happen, improbable or not, than if the schools were included  
13 in the emergency planning zone in the first instance?

14 A (WITNESS BEALE) Yes, I guess you are right.

15 Q Aren't there any other benefits other than being  
16 included in the emergency plan for being included in the  
17 emergency planning zone? I do not know. I am asking you.

18 A (WITNESS BEALE) Your word, benefit -- in other  
19 words, in the setting up of the plans, the ten mile area was  
20 picked and planning appropriate, and the counties and the  
21 state and the utility for preplanning of those zones. Also,  
22 outside of the ten miles, the counties have an overall plan,  
23 emergency plan to cover any emergency. There could be a  
24 situation happen at those two schools to where evacuation  
25 would be required for a chlorine problem or some other

1 related hazardous problem, and they have adequate plans to  
2 cover that type of evacuation.

3 Q Well --

4 A (WITNESS BEALE) Maybe I am missing your point.

5 Q My question is a little different than that.

6 Perhaps it is a poorly phrased one. So far all we have  
7 discussed is evacuation, or primarily discussed evacuation,  
8 and apparently the schools will be included in the  
9 evacuation plan.

10 Aren't there any other aspects of being included  
11 in the emergency planning zone that would not accrue to the  
12 schools because they are not included in the emergency  
13 planning zone?

14 A (WITNESS BEALE) None that I am aware of.

15 (Board conferring.)

16 CHAIRMAN GROSSMAN: Judge Linenberger.

17 BY MR. LINENBERGER: (Resuming)

18 Q In the right hand column, the farthest right hand  
19 column of the textual portion of the brochure there is this  
20 instruction, in all caps that has been discussed, and you  
21 have indicated the purpose of that from the point of view of  
22 efficiency of activities on the part of the law enforcement  
23 authorities.

24 The next paragraph I am just a little bit curious  
25 about. It advises the people that their property is going

1 to be protected while they are out of the area, and the  
2 thing I am curious about is that if the area is unhealthy  
3 for them, why is it all right for the police to stay there  
4 and protect their property, and has any consideration been  
5 given to the psychological effect on the police, for  
6 example? Here they are asked to get people out of the area  
7 because it is not safe, and then it sounds as though they  
8 have been told to stay there themselves and protect property.

9           Now, is there some kind of a conflict there,  
10 maybe, or can you explain that?

11       A       (WITNESS BEALE) Well, we have discussed with the  
12 state law enforcement and also the local on this matter of  
13 if people are evacuated for patrolling the area for possible  
14 theft or whatever. It is not the intent -- maybe it was a  
15 misunderstanding or whatever that the local law enforcement  
16 officials would stay in those areas. They would, if the  
17 evacuation were called, they would evacuate and set up  
18 roadblocks at an appropriate distance. It is intended by  
19 that statement to be two-fold. One is that periodically the  
20 law enforcement would go through. That would be determined  
21 by the state or the local officials.

22           Secondly, it is also that if the public, in  
23 leaving the area, possibly has concern for the protection of  
24 their property, and the statement was put in there to  
25 reassure them that in evacuating, the thought or the

1 planning to protect their property was considered.

2 Q Well, perhaps that is the intent. I am just  
3 curious about whether the reassurance is for real. I do not  
4 mean with respect to the people's reactions, but I mean with  
5 respect to what is going to happen to their property, and if  
6 indeed looters choose to move in on foot and traffic control  
7 people are only at intersections at the periphery of the  
8 evacuation area, then it seems to me a lot of people are  
9 going to get pretty angry at the utility when they come back  
10 and find damage and say, well, by golly, the utility  
11 brochure promised me my property was okay, and it is not.

12 And what are you the utility going to do about it?

13 I just offer that for your consideration.

14 Now, let me just touch on one small thing, the  
15 sirens.

16 Is anybody worried about somebody hearing a siren  
17 going off and saying, gee, I had better get my watch out and  
18 see if that is three minutes long, and if he thinks maybe it  
19 is three minutes long, well, the heck with my watch, maybe I  
20 had better scramble around and draw water or do something,  
21 get the pets in, and he does not know whether it is three  
22 minutes long.

23 So without getting into a long discussion here,  
24 let me just quickly offer something else. Mechanical sirens  
25 are awkward things. Electronic sirens are programmable,

1 they are much easier to control in terms of coding a signal,  
2 and you could have some, a few short beeps, a few long  
3 beeps, and in ten seconds a person could know whether it was  
4 the kind of signal that means Summer is going up in smoke,  
5 or the kind of signal that means something else, so that I  
6 thank you. That is all I have.

7 A (WITNESS BEALE) One thing I might point out, in  
8 following up on that statement, there are not a lot of  
9 sirens within the ten miles around the Summer station.  
10 There are only, to be exact, four sirens, and they are used  
11 for fire, volunteer fire company use.

12 So our tendency and my belief is that if a siren  
13 of any nature for a long period of duration such as three  
14 minutes goes off, with the number of sirens we are putting  
15 in, the people will know what that siren implies.

16 MR. LINENBERGER: Thank you.

17 BY DR. HOOPER: (Resuming)

18 Q I am not sure who to direct my question to. Let's  
19 try it with Mr. Baehr.

20 Mr. Baehr, would you agree that a brochure such as  
21 this could be a pretty powerful vehicle for control of  
22 public attitudes, and depending upon what you emphasize in  
23 terms of, say, health physics effects? Would you agree to  
24 that statement?

25 A (WITNESS BAEHR) Yes, I suppose it could be.

1 Q Would you agree that if you wanted people to be  
2 alarmed, or if you wanted people to be overly concerned or  
3 very much concerned about or even organized against nuclear  
4 power, you might use the low level, long term effects? You  
5 would emphasize this sort of thing, wouldn't you, if you  
6 wanted to do that, if you wanted to get people -- you put  
7 down a number that would be very low relative to --

8 A (WITNESS BAEHR) I would attempt to choose the  
9 least statistically significant piece of information.

10 Q All right.

11 Now, if on the other hand, you wanted to get  
12 people overly soothed and not concerned, you want to convey  
13 that impression, you would use some acute level, wouldn't  
14 you, some acute level where you would have immediate  
15 radiation damage.

16 A (WITNESS BAEHR) Some level which defines a  
17 clinically --

18 Q Right.

19 A (WITNESS BAEHR) -- definable effect.

20 Q Right. You would take something that would be,  
21 knowing all the time that there were chronic levels that  
22 would also hurt you, wouldn't you? So you would take  
23 something that would be an acute level.

24 A (WITNESS BAEHR) Correct.

25 Q Well, now, what are you going to do? On the one

1 hand you have some -- you are sort of in the middle here  
2 between two things, aren't you?

3 A (WITNESS BAEHR) Definitely am.

4 Q So you sort of have a dilemma. If you want to  
5 please the utility, you want to pick a number that is, you  
6 know, that says everything is okay, and if you want to  
7 believe Mr. Bursey over here who is trying to organize  
8 people against nuclear power, you want to pick another  
9 number, don't you?

10 A (WITNESS BAEHR) Once again, I go back to what I  
11 conceive the basic purpose for these numbers being put  
12 together --

13 Q Wait, wait, wait, let me ask the question first  
14 before you go ahead.

15 What is the only rational way to do it if you are  
16 in between such a dilemma? What sort of a rational way can  
17 you come up with?

18 A (WITNESS BAEHR) Present all possible information.

19 Q What is the magic word? Have you ever heard of  
20 objectivity?

21 A (WITNESS BAEHR) Yes, sir, I have.

22 Q All right.

23 Well, now, what can you do in a table like this to  
24 present objectivity?

25 I guess, is that what you have attempted to do?



1           A       (WITNESS BAEHR) Not really. It is intended once  
2 again to just provide a framework for comparison by the  
3 general public who does not have the capability, if you  
4 will, of completely discerning all potential effects, all  
5 probabilistic effects.

6                    One point I will make --

7           Q       Excuse me. You have said the thing that I want  
8 you to say, but can't this framework be objective?

9           A       (WITNESS BAEHR) It certainly can be more  
10 objective than has been done in this brochure.

11          Q       I did not say your brochure was not objective.

12                    (General laughter.)

13                  WITNESS BAEHR: I understand, sir, but for  
14 example, the number of 5000 in that brochure just so happens  
15 to correspond to the emergency action level for evacuation  
16 of personnel or persons from various sectors around the  
17 plant in the state plan. I think that should be pointed out.

18                  BY DR. HOOPER: (Resuming)

19          Q       Well, then, wouldn't you say it would be a fair  
20 idea, sort of a working goal, to present something which is  
21 objective and will sort of outline the boundaries in an  
22 objective way? Would that be sort of a worthwhile goal?

23          A       (WITNESS BAEHR) I think we should consider that  
24 when we reform this, yes.

25          Q       I do have a specific comment, and this goes back

1 to the thing that bothered Mr. Bursey so much, the 25,000.

2           Now, we agree that these people are not  
3 technicians that read this sort of thing. But if you look  
4 at the 25,000 level, 25,000 statement, and the statement  
5 accompanying the 25,000, it says level at which health  
6 effects can first be detected.

7           Now, if you interpret that first two ways, one on  
8 a scale of time, and another on a scale of radiation, and so  
9 that I do not believe what comes through here is chronic  
10 effects, and if you -- can you think of a word, some way of  
11 stating this so that you recognize you are talking about  
12 chronic effects and that will also convey the idea that  
13 there are -- I am sorry. I misspoke. I said acute effects  
14 -- convey the idea that there are some chronic effects that  
15 also are below that? I think that would perhaps make Mr.  
16 Bursey happy and everyone happy.

17       A       (WITNESS BAEHR) I believe that would be proper to  
18 include, a couple of sentences -- once again, it all depends  
19 on the length of the brochure -- that would more adequately  
20 reflect your comment.

21           DR. HOOPER: All right, thank you.

22           CHAIRMAN GROSSMAN: It also depends on whether you  
23 are going to include that \$25,000 figure in the next  
24 brochure.

25           WITNESS BAEHR: At all.

1 (General laughter.)

2 CHAIRMAN GROSSMAN: Mr. Knotts.

3 REDIRECT EXAMINATION

4 BY MR. KNOTTS:

5 Q Mr. Baehr, the natural background figure that you  
6 were asked about on the table is an average figure. Is that  
7 average about correct, that 100?

8 A (WITNESS BAEHR) Not for the Jenkinsville area.

9 Q Have you yourself made measurements of the  
10 Jenkinsville area?

11 A (WITNESS BAEHR) Since 1978 we have had an ongoing  
12 PLD environmental program and have made direct measurements  
13 in that area.

14 Q What sort of variations, if any, have you seen?

15 A (WITNESS BAEHR) The variation in the indicator  
16 sites, the sites that are within five miles of the facility,  
17 are as much as 40 millirem per year over us, a distance -- I  
18 mean 25 millirem a year over a distance of a mile and a half  
19 to two miles. In other words, it is very locality-dependent.

20 Q Did you say 20 millirem per year variation?

21 A (WITNESS BAEHR) Twenty-five over.

22 Q Twenty-five?

23 A (WITNESS BAEHR) Over a distance of one and a half  
24 to two miles.

25 Q One and a half to two miles.

1           Is that due to variation in naturally occurring  
2 radiation or is there some nuclear activity that explains  
3 that?

4           A       (WITNESS BAEHR) It is primarily associated with  
5 natural radiation, primarily associated, as a matter of  
6 fact, with geology.

7           Q       With geology, and this is in the immediate  
8 vicinity of the plant site?

9           A       (WITNESS BAEHR) This is within the immediate  
10 vicinity, within five miles of the plant site.

11          Q       Before the plant is operating.

12          A       (WITNESS BAEHR) Before the plant is operating.

13          Q       Thank you.

14                 Mr. Beale, you indicated that there are presently  
15 four sirens in the area surrounding the plant.

16                 About how many will there be when the company gets  
17 done installing the siren system, do you know?

18          A       (WITNESS BEALE) Yes. There will be -- we are  
19 putting in 100 sirens, and with the four that are in  
20 existence, there will be 104.

21                 (Counsel for Applicant conferring.)

22                 MR. KNOTTS: I have nothing further for the panel.

23                 CHAIRMAN GROSSMAN: Before Mr. Bursey has some  
24 recross, was that 100 millirems plus or minus 25, or is  
25 there a different figure?

1           WITNESS BAEHR: The actual -- I think Mr. Knotts'  
2 question related to what was the differential that we would  
3 expect in general in the Jenkinsville area? If memory  
4 serves me correctly, the per year radiation dose average is  
5 somewhere around 65 to 75 MR per year. That is different  
6 from the 100 figure.

7           CHAIRMAN GROSSMAN: So it is 70 plus or minus 25.

8           WITNESS BAEHR: Correct, over a distance of a mile  
9 and a half, very statistically significant.

10          CHAIRMAN GROSSMAN: Mr. Bursey.

11                           RECROSS EXAMINATION

12          BY MR. BURSEY:

13          Q    Mr. Baehr, in the area that you were referring to  
14 there is a decommissioned reactor that was operable for  
15 about four years, is that right?

16          A    (WITNESS BAEHR) That is correct.

17          Q    Mr. Beale, there are some schools and some  
18 institutions inside this ten mile radius, is that right?

19          A    (WITNESS BEALE) Schools. No institutions.

20          Q    Businesses that might employ more than a few  
21 people, if we could infer that they are institutions?

22          A    (WITNESS BEALE) There are businesses, but those  
23 are not in the context of institutions that I can see.

24          Q    And do you feel the company has some  
25 responsibility to educate the people in that school about

1 the emergency plans?

2 A (WITNESS BEALE) I feel like not only the schools  
3 but other means around the station.

4 Q But especially the schools, in that there is a  
5 concentration of people there.

6 A (WITNESS BEALE) Yes, I think that is a fair  
7 assumption.

8 Q It is my recollection there are about 8000 people  
9 living in this zone.

10 A (WITNESS BEALE) It is a little bit more than that.

11 Q 8200?

12 A (WITNESS BEALE) Somewhere around 10,000.

13 Q And Ms. McSwain mentioned that she had mailed out  
14 2000 of them, is that right?

15 A (WITNESS BEALE) No. I think in response to Mr.  
16 Wilson's question, I indicated that there were approximately  
17 2000 households within the ten mile area that we mailed the  
18 brochures to.

19 A (WITNESS MC SWAIN) In addition to mailing, the  
20 brochures have been distributed to various businesses and so  
21 forth in that area.

22 Q Have you, someone from the company visited the  
23 school in the area and actually spoken with the principal  
24 and left some brochures and held a course for teachers or  
25 something of that nature?

1           A       (WITNESS MC SWAIN) We have not held a course for  
2 teachers specifically in emergency plans, no. The brochures  
3 were at the school the night of the public meeting, if you  
4 are referring to McCoy Liston. So there have been brochures  
5 left there, yes.

6           Q       But you do accept that you have a responsibility  
7 to educate the people in the ten mile zone, including the  
8 school.

9           A       (WITNESS MC SWAIN) Yes.

10          Q       Now, does that responsibility overflow to the two  
11 schools that Judge Grossman was referring to, the Kelly  
12 Miller and Greenbrier?

13          A       (WITNESS MC SWAIN) Our responsibility in terms of  
14 education, I think we have a responsibility to make this  
15 information available to those two schools, yes. However,  
16 our educational information program is not limited to the  
17 ten mile EPZ.

18          Q       It is mandated within the ten mile EPZ, is that  
19 right?

20          A       (WITNESS BEALE) I think that what we are saying  
21 is that there is a commitment on the company's part to issue  
22 information on emergency and basic radiation information to  
23 the general public within the ten miles. I think what Ms.  
24 McSwain is saying is that the company has a commitment to  
25 better inform and educate the public throughout its service

1 area.

2 Q I would certainly agree with that. But you are  
3 mandated by NUREG-0654\* to do that within the ten mile zone.

4 A (WITNESS BEALE) That is what I said in the first  
5 part of my statement, yes.

6 Q Okay. And then, so, we could from that infer that  
7 the four schools that immediately come to my mind that are  
8 just outside that ten mile zone would indeed not have that  
9 mandated educational consideration.

10 A (WITNESS BEALE) As referenced to the ten mile  
11 EPZ, that is correct, but in stating -- to follow up again  
12 what Ms. McSwain said, we are intending to better educate  
13 those schools through the established SCE&G program.

14 Q I can appreciate your considerations, but in  
15 getting to Judge Grossman's point about what would, to be  
16 specific, the Kelly Miller, the Greenbrier, the Chapin High  
17 School, the Chapin Elementary School, what disadvantage they  
18 might have in being in the evacuation plans but not in the  
19 EPZ, this might indeed be one of them.

20 A (WITNESS MC SWAIN) In the case of Chapin High  
21 School, we have been in that school. We have spoken at the  
22 invitation of teachers. And we have made these brochures  
23 available.

24 Q And in --

25 A (WITNESS MC SWAIN) We go on invitation to any



1 school.

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1 Q Have you been to the Lohman home, the Senior  
2 Citizens' Home, in White Rock?

3 A (WITNESS McSWAIN) No, I have not.

4 Q The ten-mile radius that is shown here, Mr. Beale,  
5 did you draw this? This map?

6 A (WITNESS BEALE) No, we had an artist to do this.  
7 It was done from a map that was made available to us from  
8 Mr. Beale, and I am afraid our artist rounded the edges, if  
9 that is what you are concerned about. The map that we gave  
10 him was not a round circle like this.

11 Q I see, it was a square circle.

12 A (WITNESS McSWAIN) No, it was a blimpy circle with  
13 areas that went out beyond that.

14 Q The brochure makes no mention of agricultural or  
15 livestock considerations. Are we going to see that included  
16 in the next brochure?

17 A (WITNESS McSWAIN) It has been mentioned, and we  
18 have definitely said we would do it. I think it was my  
19 understanding of the discussion that the Clemson extension  
20 agent in each county is working with the agricultural  
21 producers in that area.

22 Q So you do not see that as any NUREG requirement  
23 that you educate chickens in the cows in the area?

24 A (WITNESS McSWAIN) It is not mentioned in the  
25 guidelines, no.

1 MR. BURSEY: That is all I have, Judge.

2 CHAIRMAN GROSSMAN: Mr. Goldberg?

3 MR. GOLDBERG: No.

4 CHAIRMAN GROSSMAN: Mr. Wilson?

5 BY MR. WILSON:

6 Q Is the listed route in the brochure -- is that  
7 simply a primary route for the residents to use?

8 A (WITNESS BEALE) It is a primary route.

9 MR. WILSON: All right, sir, thank you.

10 CHAIRMAN GROSSMAN: Mr. Knotts?

11 MR. KNOTTS: I have nothing further for the  
12 panel. I do, since Mr. Beale's pre-filed testimony, I guess  
13 -- what we are due to have is a summary of Mr. Beale's  
14 pre-filed as the next order of business.

15 CHAIRMAN GROSSMAN: Yes, we will take a break now  
16 and when we come back we will have the summary for Mr.  
17 Bursey at his preference will make the objection.

18 MR. KNOTTS: All right, and for planning purposes  
19 and to remind Mr. Bursey and the other parties, there are  
20 exhibits associated with Mr. Beale's testimony, the  
21 applicant's emergency plan, which included the time assess-  
22 ment, the Wilbur Smith evacuation. That is part of what was  
23 submitted to the NRC by the applicant, and we have today the  
24 correct versions of all the plans that were discussed when  
25 the state and local officials were here.

1           And all of them but one have been previously  
2 assigned an exhibit number. I think it has been indicated  
3 they will be received by agreement. But all of those  
4 materials are here today and we will provide them to the  
5 reporter. When we have done so, we will indicate on the  
6 record which ones are which number.

7           CHAIRMAN GROSSMAN: Fine. We will take a  
8 ten-minute recess.

9           MR. KNOTTS: Thank you.

10          (A short recess was taken.)

11          CHAIRMAN GROSSMAN: I forgot to thank the panel  
12 and to excuse those panelists other than Mr. Beale. Thank  
13 you.

14          (Whereupon, Witnesses McSwain, Baehr, and Warner  
15 were excused.)

16          I just want to make sure, Mr. Knotts, that the  
17 reconstructed testimony of Mr. Beale does not have a state-  
18 ment in it that was found on page 32 of the original with  
19 regard to a large core melt accident and a large release of  
20 radiation. I cannot find it. But I have not reviewed it  
21 that thoroughly. Is that still in here? Mr. Beale, could  
22 you tell me?

23          MR. KNOTTS: Could you repeat, Your Honor?

24          CHAIRMAN GROSSMAN: There was a reference on page  
25 32 of your original testimony which related to a large

1 release of radiation such as might be associated with a very  
2 large core melting accident. And I just wanted to make sure  
3 that that was not in the new version, since I cannot find  
4 it. But if it is, please let me know.

5 WITNESS BEALE: If I am not mistaken -- I would  
6 have to get a copy of the original that I prepared -- but  
7 there is on page 14 and 15 of the existing testimony in  
8 reference to the emergency planning zone distance, that  
9 addresses some sort of design accident.

10 Now, to my knowledge, by quick memory, that is the  
11 only place that I have reference to in my testimony in refer-  
12 ence to a core melt or design base accident.

13 MR. KNOTTS: The statement on the former page 32  
14 is out.

15 WITNESS BEALE: Oh, okay.

16 CHAIRMAN GROSSMAN: Mr. Bursey, should we have the  
17 summary now or do you want to proceed with voir dire?

18 MR. BURSEY: Well, sir, I have some difficulty in  
19 Mr. Beale's revised testimony, if for no other reason than  
20 the fact I prepared my cross examination based on the  
21 previous testimony. And there are substantial differences  
22 in the composition, and perhaps variances in the content  
23 that I am having some trouble with, and I am wondering if  
24 Mr. Knotts could speak to any difficulty that he might have  
25 in simply sticking with Mr. Beale's withdrawing the revised

1 version and sticking with the original version -- what  
2 difficulty there would be in that.

3           MR. KNOTTS: My difficulty is that the Fairfield  
4 United Action contentions are no longer in the case, and I  
5 did not want to unnecessarily burden the record with matters  
6 that are not relevant to Mr. Bursey's contention. And I  
7 therefore asked the witness to remove most of the material  
8 that had not already been addressed in some other fashion,  
9 admitted into evidence sometimes without objection, some-  
10 times over objection.

11           CHAIRMAN GROSSMAN: Mr. Goldberg?

12           MR. GOLDBERG: I am not sure if that is a motion,  
13 but maybe this might be the proper time to take a position  
14 on that related matter. It does appear as though the  
15 applicant has elected -- I wholly concur with Mr. Knotts  
16 about not putting on a direct case on issues no longer in  
17 controversy.

18           But it does appear that he has elected to present  
19 direct testimony on matters beyond the scope of Mr. Bursey's  
20 contention, and it is not the staff's intention to do  
21 likewise. I guess my comments are in the nature of a  
22 position on that matter. And rather, I suppose, than inter-  
23 rupt the examination of another party's witness, they may be  
24 construed as a continuing objection to testimony -- to cross  
25 examination that exceeds the scope of Mr. Bursey's

1 contention.

2           CHAIRMAN GROSSMAN: I am not sure I understand  
3 what you are objecting to, Mr. Goldberg. Are you objecting  
4 to the proffer of the new version or to cross examination on  
5 the basis of the old version, or is there some other?

6           MR. GOLDBERG: Well, I am not going to dictate to  
7 the applicant how he presents his direct case. I concur  
8 that I oppose Mr. Bursey's motion to request the applicant  
9 to introduce the pre-filed testimony in the form in which it  
10 was distributed because it preceded the dismissal from the  
11 action of a party whose contentions were raised therein.

12           I have no objection to the receipt of the revised  
13 pre-filed testimony of Mr. Beale, other than to note that in  
14 some respects, it does exceed the scope of Mr. Bursey's  
15 contention. And I will not interrupt examination of Mr.  
16 Beale on the basis of his direct testimony, but do wish to  
17 say that I have something, I suppose, in the nature of a  
18 continuing objection to cross examination about matters that  
19 exceed the scope of that contention.

20           CHAIRMAN GROSSMAN: I do not understand that, Mr.  
21 Goldberg. If you object to going beyond the scope of Mr.  
22 Bursey's contention, and there are matters beyond the scope  
23 of that contention in the direct testimony, then your  
24 objection goes to the direct testimony and will also go to  
25 cross examination. I cannot see that you can allow the

1 direct testimony in without objection and then object to  
2 cross examination within that same scope.

3 MR. GOLDBERG: I think that is a very good obser-  
4 vation, Judge, and while the other parties are being heard  
5 on that, let me re-examine the proffered testimony in that  
6 light.

7 CHAIRMAN GROSSMAN: Well, before we even get to  
8 that, it has been now a month and 15 days in which we have  
9 had time to prepare testimony on the understanding that  
10 Fairfield United is no longer in the case, and to hand  
11 testimony to the opposing parties when the witness is on the  
12 stand to replace the pre-filed testimony seems to be a  
13 little unfair. And I think it is well taken that Mr. Bursey  
14 objects to not having had a chance to prepare cross  
15 examination on this.

16 Now, it would be one thing if only portions of  
17 that pre-filed testimony were deleted.

18 MR. KNOTTS: That is all that has happened, Judge.

19 CHAIRMAN GROSSMAN: Well, I do not see it that way  
20 because I tried to put it together, too, and it seems to me  
21 to be a revamping.

22 MR. KNOTTS: I can show you a marked-up copy which  
23 shows deletions and no additions except headings to replace  
24 places where there were contentions quoted.

25 CHAIRMAN GROSSMAN: Mr. Bursey?



1           MR. BURSEY: In the few minutes that I have had to  
2 read it I am not comfortable proceeding with the basis of my  
3 prepared cross examination having to be fit into the revised  
4 testimony. It may be true that there is no essential  
5 contextual change, but there is enough superficial changes  
6 to make me feel uneasy and a need to put forth a motion to  
7 proceed with the previously-filed testimony.

8           I hate to sound like a lawyer, but I do not think  
9 it is timely.

10           CHAIRMAN GROSSMAN: I do not think we do want the  
11 previously-filed testimony in the case. However, I am not  
12 sure that you cannot question on the basis of the previously-  
13 filed direct testimony, and you will just have to work a  
14 little harder to state the foundations for your questions.

15           Now, if it turns out that you ask a question and  
16 it is no longer a part of the new testimony, it may well be  
17 that the questions may be objectionable in that they go  
18 beyond the scope of what is in the case. Nevertheless, I  
19 will say that as a general ruling, we will not rule out  
20 questions merely because they are not included in the new  
21 testimony if you use as a foundation the old testimony, as  
22 long as they are still within the scope of the case.

23           However, you ought to make your foundation  
24 complete enough so that we have a complete record. In other  
25 words, whether or not the old pre-filed testimony is in the

1 case, Mr. Beale nevertheless made those statements; he made  
2 them as a responsible officer of the company, and he can be  
3 questioned on statements that he has supplied you  
4 previously, just the same way anyone in the company can be  
5 questioned on answers to interrogatories or other matters  
6 that were stated by the company, not even just in this case.

7           So we will let you proceed to ask the questions.  
8 First, we would like your position on whether you have any  
9 objections to the new testimony in view of the fact that you  
10 can question on the basis of the old testimony. Do you, Mr.  
11 Bursey? Or do you want to have a few seconds to review the  
12 new testimony?

13           MR. BURSEY: Well, there are two immediate areas  
14 of at least factual disagreement that I may bring to your  
15 attention now, and perhaps go into on cross examination.

16           CHAIRMAN GROSSMAN: I think they would certainly  
17 be proper questions for cross examination if the new version  
18 differs from the old version. I would expect that you would  
19 cross examine vigorously on the reasons for the change, and  
20 perhaps which is the proper version.

21           MR. BURSEY: Yes, sir. I am not saying there's a  
22 difference in the versions; I am just saying that if we are  
23 going to -- did I understand you to say there was a move to  
24 introduce the revised testimony and do I have any questions  
25 about it?

1           CHAIRMAN GROSSMAN: Yes. Do you have any objec-  
2 tions to introducing the revised testimony in light of the  
3 fact that the Board has indicated that you can certainly  
4 question on the basis of the old testimony, or on the basis  
5 of questions that were raised or statements made in the old  
6 testimony. But what we want is whether you have any objec-  
7 tions to the new testimony being introduced.

8           MR. BURSEY: I am just going to have to go with a  
9 feeling of discomfort and say that I would object to it  
10 being introduced. I am prepared to go ahead as you  
11 suggested in using the previous testimony as a guideline,  
12 but I would object to the introduction of his testimony.

13           CHAIRMAN GROSSMAN: Okay, and I take it the objec-  
14 tion is primarily on the fact that it is just being  
15 submitted to you at this time.

16           MR. BURSEY: Yes, sir.

17           CHAIRMAN GROSSMAN: We will overrule the  
18 objection, but it is noted in the record, and to a certain  
19 extent, it is well taken, although overruled. Mr. Knotts?

20           MR. KNOTTS: Judge, I would like to apologize that  
21 the logistical problems delayed by a day the time when we  
22 would have had the revisions available. I had hoped to be  
23 able to pass them out last night, as I think I indicated on  
24 the record, but they did not arrive until we bound up last  
25 night.

1           Secondly, I would like to explain that the reason  
2 we left the Fairfield material in until this late date is  
3 because we were suffering under the mis-impression that the  
4 Board had adopted the Fairfield contentions as its  
5 questions, and that was clarified in the conference call  
6 last Friday, and we tried to make the revisions. And we  
7 cannot point -- I do not know where we got that impression.  
8 Mr. Goldberg disabused me of his having any such  
9 impression. It must have been at my own imagining, and I  
10 apologize for that.

11           And thirdly, I do not disagree with the Board's  
12 ruling at all. I think you have stated a very appropriate  
13 procedure. The only thing I would clarify is that Mr. Beale  
14 is the responsible employee of the company.

15           CHAIRMAN GROSSMAN: Well, I am not sure that we  
16 have made a final ruling and I do want to caucus with the  
17 Board. Mr. Goldberg, do you have something to say, first?

18           MR. GOLDBERG: Yes. Either before or after the  
19 Board caucuses. I guess -- well, let me say consistent with  
20 our position, which I believe the Board accurately said, if  
21 we object to cross, we should object to the introduction of  
22 direct. And there are some portions of the proffered  
23 testimony of Mr. Beale which we do feel exceed the scope of  
24 Mr. Bursey's contention. And we feel thereby compelled to  
25 object to its introduction on that ground.

1           That is, the discussion on page 8 about the  
2 ability to notify local emergency preparedness officials  
3 within 15 minutes. I am sorry, that we have no objection  
4 to. We would object to the section on number 9 about the  
5 distribution of informational materials because it is un-  
6 related to a contention which basically questions the  
7 ability to coordinate the onsite emergency planning with the  
8 offsite emergency planning, and to the extent that the off-  
9 site emergency response organizations are involved.

10           The estimates of evacuation times on page 10; the  
11 discussion on the bottom of page 11 about the types of pro-  
12 tective action; the discussion on page 12 about protective  
13 action guides; the discussion on page 13 about onsite  
14 emergency first aid capability; the discussion on page 14  
15 about the interim emergency operations facility; and plume  
16 exposure pathway EPZ boundaries as being, no doubt, part of  
17 the emergency planning considerations but unrelated to the  
18 issue.

19           And I guess I would like to further explain. I  
20 perfectly understand the Board's comment about the possible  
21 appearance of proffering testimony that differs from that  
22 which was pre-filed. And I think unfortunately, to some  
23 extent, we were the victim of the timing. As you know, we  
24 were under an obligation to file testimony on May 28, which  
25 was a bit earlier than customary and preceded by some period

1 the Appeal Board's ultimate decision on the disposition of  
2 the FUA position.

3           And I do suppose that in a perfect world we should  
4 have made it well understood to all people that we no longer  
5 intended to introduce a direct case on those issues.  
6 However, I suppose that it is just as reasonable for a party  
7 to assume, for purposes of their preparation, that those  
8 items no longer remained an issue, but I do accept whatever  
9 responsibility I might have had in not making that  
10 abundantly clear to all parties.

11           I know that I have had some discussion about this  
12 with Mr. Knotts, and I will not even characterize those  
13 discussions, but we do not feel that it places a burden on  
14 Mr. Bursey or any other party to formulate questions on the  
15 strength of the testimony that will be proffered, as long as  
16 they are mindful of the bounds of the issues that Mr. Bursey  
17 raised.

18           MR. BURSEY: Judge Grossman, if we are going to  
19 begin excluding areas from cross examination in the most  
20 recently filed submittal of Mr. Beale I would like to  
21 respond to Mr. Goldberg, and if we are not going to do that  
22 I will not take up your time.

23           CHAIRMAN GROSSMAN: If we are going to be  
24 excluding -- ?

25           MR. BURSEY: Sections of Mr. Beale's testimony,

1 the most recently-filed submittal.

2 CHAIRMAN GROSSMAN: You mean if the Board is going  
3 to rule it is all in, you have nothing further to say?

4 MR. BURSEY: Yes, sir.

5 MR. KNOTTS: May I respond to Mr. Goldberg's objec-  
6 tion briefly?

7 CHAIRMAN GROSSMAN: Yes.

8 MR. KNOTTS: In addition to what I have already  
9 said I would add that it is my understanding -- I do not  
10 have the transcript of the session a couple of weeks ago  
11 when we had the state and local officials here -- but it is  
12 my understanding of the record, and I can be corrected, that  
13 the items after page whatever it was, page 7 or 8, where Mr.  
14 Goldberg started having problems, page 9 perhaps -- well, 9  
15 obviously was the brochure that we have already covered at  
16 length. But it is my understanding that the material after  
17 that relates to testimony that has already been given in  
18 this proceeding.

19 That is to say, if you want to characterize it as  
20 rebuttal rather than direct, it can be so characterized. I  
21 think all of these topics have already been touched upon,  
22 and the question is past; what is the scope of this, that or  
23 the other thing. It is already in the record, and this is  
24 our comment on what is in the record. The things that are  
25 totally out are the things that have not been touched upon.

1           CHAIRMAN GROSSMAN: Well now, let me ask you about  
2 your understanding, Mr. Knotts, of the Appeal Board's  
3 decision. Did it throw out all of the Fairfield United  
4 contentions?

5           MR. KNOTTS: It did, sir. I do not know whether  
6 you want to hear anything further from me on where I got my  
7 impression.

8           CHAIRMAN GROSSMAN: Well, it seems to me that that  
9 is one conclusion you can draw from the opinion. But I  
10 recall also in the opinion that the Appeal Board suggested  
11 that at least two of our members should cross examine on  
12 items -- .

13          MR. KNOTTS: That is where I got my impression. I  
14 thought I heard -- maybe it was during the seismic -- I  
15 thought heard that the Board was planning to proceed with  
16 questioning as suggested by the Appeal Board, and I took it  
17 from that that we should leave in all the material in our  
18 pre-filed evidence that related to Fairfield. I  
19 subsequently was persuaded that that was wrong.

20          CHAIRMAN GROSSMAN: Well, that is something that I  
21 think the Board will caucus on and discuss now as to whether  
22 -- and I am reserving the rulings that I just made as to  
23 whether we are going to throw out the old testimony and  
24 adopt the new testimony.

25          Because it seems as though there are two



1 suggestions in the Appeal Board's decision. One is that we  
2 throw out Fairfield United along with all its contentions  
3 and the second being that we take the place of Fairfield  
4 United and do the questioning that FUA would have done had  
5 it remained in here. And I am not so sure that the two  
6 inferences are consistent. Mr. Goldberg?

7 MR. GOLDBERG: Yes. I guess I would like to be  
8 heard on that before the Judges' ruling. I do concur with  
9 Mr. Knotts that in fact, the Appeal Board in dismissing FUA  
10 similarly dismissed their contentions. There is an  
11 indication there that if the Board, the Licensing Board,  
12 felt that there were areas of interest raised by those  
13 issues that it could pursue them.

14 Now, we have witnesses available to answer  
15 questions of interest to the Board in that vein, but I think  
16 the Board would then really be adopting those matters as its  
17 own, and that should be recognized because I think that part  
18 of the relief that the parties obtained in seeking or in  
19 obtaining the dismissal of FUA was to place the proceedings  
20 in the posture that it was before their entry into the case,  
21 with the exception that if -- obviously, if there were areas  
22 raised in those contentions -- and I am not sure that, you  
23 know, the Board believes that as a wholesale matter, that  
24 those contentions do contain such an interest -- but that if  
25 there are areas of interest that the Board necessarily has

1 an obligation to pursue those.

2           We believe that that could be accomplished by  
3 directing appropriate questions to the witnesses who will  
4 offer direct testimony on the previously-admitted issue. So  
5 I do not think that there is -- I do think that there is  
6 some middle ground here between adjudicating all of those  
7 issues and being available to answer questions that the  
8 Board might feel it needs in order to reach a sound decision.

9           I am not sure how far that would extend to other  
10 parties, and I do not want to belabor the point, but just  
11 finally to address Mr. Knotts' point, we are unfortunately,  
12 I suppose, in the position of having to move to strike  
13 portions of the newly-proffered contention.

14           I fully appreciate Mr. Knotts' point that it does  
15 address testimony that was received. I hope the record will  
16 reflect that the staff registered an objection to the scope  
17 of the examination that was conducted extensively by -- into  
18 the views of those state and local officials and into  
19 matters that exceeded the bounds of the contention.

20           So we are just trying to be consistent in our  
21 position on that matter.

22

23

24

25

1           CHAIRMAN GROSSMAN: Does anyone have handy right  
2 now Mr. Bursey's contention on emergency planning?

3           Never mind. The Board has it.

4           (Board conferring.)

5           CHAIRMAN GROSSMAN: The Board is going to reverse  
6 the ruling it made as to the new testimony being in.  
7 Rereading Mr. Burseys contention, it does not appear to us  
8 as though the particulars of the Fairfield United  
9 contentions go beyond Mr. Bursey's contention. I think that  
10 is a point we made in our original ruling, and I do not  
11 understand that the Appeal Board reversed us on that, and I  
12 read their ruling as permitting the Board to examine on the  
13 basis of the Fairfield United contentions, and that of  
14 course would apply also to Mr. Bursey being able to examine  
15 on those particulars, to the extent that they are in the  
16 proceedings, and as we said, we think they are in the  
17 proceedings as being within his general contention, so that  
18 the ruling is that except for particular portions that may  
19 be objected to in the old, prefiled testimony, we will allow  
20 the old prefiled testimony rather than the new.

21           And again, I want to say a critical part of our  
22 thinking is that Mr. Bursey really has not had an  
23 opportunity to frame his questions around the new testimony,  
24 and it would be unfair at this eleventh hour to require  
25 that. And it would be a lot easier on the record to have a

1 direct correlaton with the old testimony than having to  
2 supply that foundation in his questioning.

3 Mr. Knotts?

4 MR. KNOTTS: We will hand Mr. Beale his prefiled  
5 testimony.

6 CHAIRMAN GROSSMAN: Fine.

7 MR. LINENBERGER: I have a logistics problem here.

8 To save time, can we borrow an extra copy of the  
9 old version?

10 Do you happen to have one?

11 MR. KNOTTS: Yes, sir. Mr. Mahan is about to hand  
12 it to you.

13 MR. LINENBERGER: Mine is upstairs.

14 MR. KNOTTS: Very well, sir.

15 CHAIRMAN GROSSMAN: Mr. Goldberg.

16 MR. GOLDBERG: Yes, Judge. I would just like to  
17 note the staff exception to that ruling, and anticipating  
18 the further course of this process, I would just like to  
19 bring the Board's attention to certain portions of the  
20 Appeals Board decision of June 1, that is, ALAB 642. On  
21 pages 15 and 16 they discuss the relationship between FUA's  
22 proposed emergency planning contentions and the previously  
23 admitted emergency planning contention, and explicitly it is  
24 agreed with what they perceive to be the Board's implicit  
25 finding that the FUA issues did not broaden the issues by

1 concluding at page 16 that FUA's contentions are far from  
2 "substantially identical" to either those of Mr. Bursey, and  
3 is unrelated to this particular issue, the Board's  
4 management responsibility question.

5           And in further considering the matter of  
6 expansion, they continue on page 18 to reiterate the fact  
7 that rather than say they continue with the following  
8 language. " This, it seems to us" -- and it is talking about  
9 Mr. Bursey's alleged inability to effectively manage his  
10 case. They indicate that "this, it seems to us, is the  
11 appropriate course to follow, rather than opening the door,  
12 as the hearing date approaches, to another would-be party  
13 which seeks not merely to participate in the record  
14 development on the then-existing matters in controversy, but  
15 also to expand the issues to be heard."

16           Clearly, again, a clear indication that they have  
17 drawn no relationship.

18           And finally, on page 25 they indicate that  
19 "Insofar" -- they indicate that it does not follow from  
20 FUA's exclusion from the proceedings that its concerns  
21 perforce will be ignored in the licensing of this reactor  
22 insofar as they overlap either matters placed in controversy  
23 by Mr. Bursey or issues raised by the Board sua sponte, and  
24 there is a parenthetical reference to 10 CFR Section  
25 2.760(a). It would be the Board's responsibility to require

1 the adequate evidentiary exploration. To the extent they go  
2 beyond the bounds of the hearing, as fixed prior to the  
3 belated FUA intervention attempt, under the long-prevailing  
4 regulatory scheme, these concerns fall within the province  
5 of the staff. In all events, an operating license may not  
6 issue unless and until this agency makes the findings  
7 specified in 10 CFR 50.57, including the ultimate finding  
8 that such issuance "will not be inimical to" and three  
9 dashes, "the health and safety of the public. As to those  
10 aspects of reactor operation not considered in an  
11 adjudicatory proceeding (if one is conducted), it is the  
12 staff's duty to ensure the existence of an adequate basis  
13 for each of the requisite Section 50.57 determinations."

14           So we do take exception to the ruling. We are  
15 prepared to proceed on the strength of the Board's ruling.

16           CHAIRMAN GROSSMAN: Yes, and let me just clarify  
17 for the record that we did not say that the contentions are  
18 substantially identical. What we said was that the  
19 contention Mr. Bursey raised was brought enough to encompass  
20 the particulars of what was raised in the Fairfield United  
21 contentions, and in view of the circumstances, including the  
22 eleventh hour submittal of the revised testimony, the Board  
23 does choose to hear what was previously raised in the  
24 prefiled testimony and will proceed in that manner.

25           Thank you.

1 MR. KNOTTS: Thank you very much, Judge.

2 This leads me to inquire just very briefly if it  
3 is fair to conclude that the Board has now adopted as its  
4 questions all of the Fairfield contentions on emergency  
5 planning. I do not --

6 CHAIRMAN GROSSMAN: As contentions, I am not of  
7 the Board ever adopting contentions --

8 MR. KNOTTS: As its questions.

9 CHAIRMAN GROSSMAN: But we will adopt it as an  
10 area, areas that can be explored.

11 Now, you asked with regard to each particular  
12 contention -- Mr. Goldberg, did you have a comment?

13 MR. GOLDBERG: Well, I think there is -- well, I  
14 think that the Appeals Board decision is pretty clear that  
15 in its estimation the FUA contentions were not bounded in  
16 Mr. Bursey's contention. I think that that decision will  
17 reflect it. But I think, if I understand that that is the  
18 Board's ruling, that in its judgment they are bounded, and  
19 that I gather it is not then adopting them as Board issues  
20 but concluding that they are bounded by Mr. Bursey's  
21 contention.

22 If I am incorrect, I think it should be clarified  
23 for the record.

24 MR. KNOTTS: I have a reason for asking. Maybe I  
25 had better make the reason clear.

1 My reason is that Mr. Nichols testified yesterday,  
2 and exactly the same procedure was followed with Mr.  
3 Nichols. We deleted from his prefiled testimony the  
4 testimony that was actually received, and it was discussed  
5 at the time, did not have specific responses to FUA  
6 contentions. And my surmise is that what has happened is  
7 the Board did not choose to ask questions. They found all  
8 of the FUA contentions in the management area.

9 The Board chooses to interpret Mr. Bursey's  
10 contention in the emergency planning area as including the  
11 FUA contentions. I do not want to -- if I have to call Mr.  
12 Nichols back to address the FUA contentions, I just want to  
13 know that.

14 CHAIRMAN GROSSMAN: Mr. Goldberg?

15 MR. GOLDBERG: I also want the record to reflect  
16 that we have prefiled some written testimony on FUA  
17 contentions on management, corporation -- management,  
18 competence, which we did not introduce.

19 CHAIRMAN GROSSMAN: Yes, apparently those did not  
20 impose any hardship on the parties or the Board.

21 MR. KNOTTS: Fine.

22 CHAIRMAN GROSSMAN: And we ruled accordingly.

23 MR. KNOTTS: Fine.

24 CHAIRMAN GROSSMAN: And let me as a final comment  
25 on this say that in the Board's estimation, working with the



1 revised prefiled testimony would complicate the record in the  
2 case here, and that is a very important factor in our  
3 ruling. And we would just as soon move on with what we had  
4 originally filed.

5           Now, there is one area that I have some question  
6 of inclusion in the record, and I would like to hear Mr.  
7 Goldberg's statement with regard to what is said on page 32  
8 of the prefiled testimony as to whether that should be  
9 admitted in the record. And I refer specifically to the  
10 first sentence of the "Response."

11           MR. KNOTTS: Did you say page 32, Judge?

12           CHAIRMAN GROSSMAN: 32.

13           MR. GOLDBERG: You are talking now, Judge, just  
14 for clarity, of the prefiled testimony of Mr. Beale.

15           CHAIRMAN GROSSMAN: I am speaking as to whether  
16 you are going to now raise an objection to that first  
17 sentence being included in any response.

18           MR. GOLDBERG: But you are talking about --

19           CHAIRMAN GROSSMAN: The prefiled testimony of Mr.  
20 Beale, page 32.

21           MR. GOLDBERG: We, of course, do not believe that  
22 the question is appropriate, and we would just as soon  
23 strike the question. And I am not sure if the question is  
24 asked, that the answer cannot be given. But let me have a  
25 moment.

1 (Counsel for Staff confering.)

2 CHAIRMAN GROSSMAN: Are you prepared?

3 MR. GOLDBERG: I certainly hope so. I am sorry  
4 for the delay, Judge.

5 This obviously hearkens back to the discussion we  
6 had surrounding Dr. Kaku's prefiled testimony regarding the  
7 relationship between Class 9 accidents and emergency  
8 planning, and I am going to say that we do not believe that  
9 the contention was valid in that it seeks to draw a  
10 relationship between then then draft supplement, now final  
11 environmental statement and the Commission's emergency  
12 planning requirements, a position I think we took when the  
13 issue first arose.

14 However, as we indicated, a part of the planning  
15 basis surrounding the development of the rule is NUREG-0654,  
16 which considered core melt accident releases as among those  
17 accidents for which protective action and emergency planning  
18 was contemplated.

19 Now, this particular statement is likely correct  
20 if it is made with the backdrop of NUREG-0654. I think the  
21 true validity of it has to be posed to the Applicants  
22 because it talks about their emergency plan and state and  
23 local governmental entities to see what underlay their  
24 planning.

25 But I would assume that their planning did take

1 into account the possibility of a core melt accident as  
2 contemplated in NUREG-0654, which forms the underpinning of  
3 the regulations.

4           Now, with regard to whether any particular core  
5 melt accident, whether it is here described as very large or  
6 some other denomination, I cannot say. I think generally  
7 the planning has proceeded on the assumption that they can  
8 -- the plans can accommodate a core melt accident. I do not  
9 know if there is a particular one accommodated here or what  
10 the meaning of the term "very large" is, so I cannot be any  
11 more specific there. I think probably the better course is  
12 not to pursue this as an adjudicatory matter in this  
13 proceeding.

14           CHAIRMAN GROSSMAN: Well, Mr. Goldberg, I am not  
15 sure that this is consistent with your prior position which,  
16 if I recall it, is that a large release of radiation such as  
17 might be associated with a very large core melting accident  
18 is not to be considered within the emergency plan because  
19 that presupposes a release that would affect more than the  
20 ten mile emergency planning zone, and therefore it would be  
21 inconsistent with the Commission regulations, namely, 10 CFR  
22 50.47.

23           Now, are you suggesting that you could have a  
24 large release of radiation such as might be associated with  
25 a very large core melting accident, as I quote from this

1 "Response" on page 32, and not have it go beyond the ten  
2 mile emergency planning zone?

3 MR. GOLDBERG: Judge, I do not want to testify as  
4 a lawyer. I just want to, if there is a need to clarify my  
5 position, let me do that. I have never stated that if you  
6 have a very large core melt accident that there would not be  
7 radiological consequences beyond a ten mile radius. What I  
8 am saying is that the Commission considered the radiological  
9 releases which would follow from a core melt release, and as  
10 they indicate in NUREG-0654, page 7, including those release  
11 categories contained in the Reactor Safety Study, in  
12 arriving at their rule to require that protective action,  
13 including evacuation, extend to a ten mile radius, but that  
14 some varying level of protective action be implemented within  
15 what they called an ingestion exposure pathway.

16 I am not saying, and I would not be competent to  
17 testify that you could not have an accident with  
18 radiological consequences beyond ten miles. What I am  
19 saying is to the extent that that was to be an adjudicatory  
20 consideration or to be considered in individual cases, the  
21 Commission took that into account in its development of the  
22 regulations and the regulatory scheme so that it is not --  
23 it is neither appropriate nor legally proper to consider  
24 what might happen in some hypothetical, specific mechanistic  
25 Class 9 accident.

1           CHAIRMAN GROSSMAN: Well, so then, your position  
2 is that this matter might to be excluded from consideration  
3 here, that there is no room in the emergency plan for  
4 consideration of a large release of radiation such as might  
5 be associated with a very large core melting accident  
6 because this possibility was considered in formulating the  
7 rule and apparently rejected on the basis of its having a  
8 low probability, by inference, at last, when the ten mile  
9 EPZ was adopted. Isn't that your position?

10           MR. GOLDBERG: Yes, Judge, and in fact, I am sure  
11 that I objected to the introduction of this contention on  
12 the grounds that it did constitute a challenge to the  
13 regulation. My recollection now about our pleading on the  
14 petition is being somewhat refreshed as we have this  
15 discussion.

16           So yes, I do agree with you, and therefore I would  
17 move that we eliminate adjudicatory consideration of this  
18 contention in the context of the Board's ruling.

19           MR. KNOTTS: Yes, Judge, it seems to me that the  
20 contention is out because it is the contention that gives  
21 rise to the argument that the draft environmental statement  
22 supplement which deals only with Class 9 accidents -- the  
23 contention is that that has not been considered in emergency  
24 planning. Either we get the response to that contention --  
25 you cannot -- well --

1           CHAIRMAN GROSSMAN: Yes, I understand what you are  
2 saying. The contention goes out along with the testimony  
3 because the contention is outside the scope of the  
4 regulations.

5           Mr. Bursey, what we have here is the same argument  
6 as we have with respect to Dr. Kaku's testimony, and that is  
7 that the contention is outside the scope of the Commission's  
8 regulations, and therefore may not be considered by the  
9 Board.

10          MR. BURSEY: Yes, sir. With all due respect, I  
11 certainly see that very differently. I do not believe that  
12 the interpretation of the Commission's establishment of a  
13 ten mile zone precludes the consideration of a large core  
14 melt. I think that the ten miles is a guideline for  
15 detailed emergency planning that is going to be efficient in  
16 most cases.

17          Now, in no way do I see that ten mile guideline as  
18 inferring that a PWR 1 cannot happen with a large release or  
19 that those discussions cannot be held, or that indeed those  
20 discussions are very germane to understanding the  
21 ramifications of, say, a PWR 1 within the ten mile zone. I  
22 think that we can talk about a core melt and not challenge  
23 the Commission's guidelines of the ten mile evacuation  
24 planning.

25          (Board conferring.)

1           CHAIRMAN GROSSMAN: All right. The Board will  
2 rule consistently with how it has with regard to Dr. Kaku's  
3 testimony, and we will exclude Contention 10 and the  
4 response to Contention 10, both of which are contained on  
5 page 32 and the top of page 33 of the prefiled testimony.

6           MR. KNOTTS: The first three lines of page 33.

7           CHAIRMAN GROSSMAN: The first three lines of page  
8 33, that is correct.

9           Now, Mr. Bursey, do you have any objections to  
10 anything in the prefiled testimony of Mr. Beale, the old  
11 testimony that we will admit except to the extent that there  
12 are particular objections?

13           Did you offer this yet, by the way?

14           MR. KNOTTS: No, sir. I think if we want to be  
15 mechanically correct about this, I should walk through the  
16 foundation questions with Mr. Beale.

17           MR. BURSEY: If I could, before we move to that, I  
18 would like the record to reflect my exception to the Board's  
19 ruling in the exclusion of that particular portion of Mr.  
20 Beale's testimony.

21           CHAIRMAN GROSSMAN: Fine.

22           Mr. Goliberg, any further comments?

23           MR. GOLDBERG: No.

24           CHAIRMAN GROSSMAN: No. Fine.

25           Mr. Knotts, I think we ought to proceed, then,

1 with the summary of testimony.

2 DIRECT EXAMINATION -- Resumed

3 BY MR. KNOTTS:

4 Q I would like to ask, Mr. Beale, if you have a copy  
5 of the testimony that was prefiled on May 28, 1981.

6 A (WITNESS BEALE) Yes, sir.

7 Q And do you have corrections to make to that  
8 testimony?

9 A Yes, sir.

10 Q Is there an errata sheet which reflects those  
11 corrections?

12 A Yes, sir.

13 MR. KNOTTS: The errata sheet I believe has been  
14 distributed to the Board and to the parties.

15 BY MR. KNOTTS: (Resuming)

16 Q With those corrections as shown on the errata  
17 sheet, and recognizing that the material just excluded is  
18 excluded, is your testimony true and correct?

19 A That is correct.

20 Q And do you wish to adopt it as part of your  
21 testimony in this proceeding?

22 A Yes.

23 MR. KNOTTS: Very well.

24 I guess we will wait on the offer until he  
25 summarizes it, if that is the order.



1 BY MR. KNOTTS: (Resuming)

2 Q Mr. Beale, could you summarize your prefiled  
3 testimony of May 28, 1981?

4 A Surely.

5 South Carolina Electric and Gas Company has been  
6 actively involved in emergency planning for the Virgil C.  
7 Summer Nuclear Station since early 1976. The initial  
8 emergency plan for the Summer station was submitted as part  
9 of the final Safety Analysis Report. Following the events  
10 of TMI, South Carolina studied and reviewed the Lessons  
11 Learned and other related studies on emergency planning from  
12 the new requirements at 10 CFR 50 and the guidelines of the  
13 NUREG-0654, and the Lessons Learned from TMI. SCE&G  
14 submitted a revised emergency plan in June 1980.

15 Shortly after the TMI accident, action was taken  
16 by SCE&G to maintain an effective emergency preparedness  
17 program for Virgil C. Summer Station by establishing a full  
18 time position for emergency planning. Agreements with  
19 local, off-site agencies have been developed to supplement  
20 the emergency preparedness program for the summer station.  
21 These off-site support agencies include fire, medical  
22 transportation and hospital care. Training of Virgil C.  
23 Summer Nuclear Station personnel and South Carolina Electric  
24 and Gas corporate personnel on emergency plans and  
25 procedures required during an emergency at the Summer

1 Station have been initiated and will be continuing on a  
2 continuing basis. Additional training will be implemented  
3 by means of drills and exercises to test and verify the  
4 emergency preparedness of all participating personnel and  
5 organizations.

6           Such an exercise was recently conducted at the  
7 Summer Station on May 1 of this year, with state and local  
8 participation.

9           From the observation and reports of the federal  
10 observers of the exercise, SCE&G and the off-site agencies  
11 could effectively manage an emergency at the Summer Station.

12           The emergency planning I have just summarized has  
13 been accomplished to assure that if the Summer Station  
14 radiation emergency plan is implemented, South Carolina  
15 Electric and Gas Company, the State of South Carolina, local  
16 government officials, federal agencies and the general  
17 public will have the knowledge, experience and instructions  
18 to maintain a level of emergency preparedness for any  
19 emergency condition.

20           That concludes my summary.

21           MR. KNOTTS: Thank you.

22           At this time I would offer the prefiled testimony  
23 of Kenneth E. Beale, dated May 28, 1981, and excluding the  
24 portion excluded by the Board on pages 32 and 33, plus the  
25 corrections shown on Mr. Beale's errata sheet, and ask that

1 they be bound into the transcript as if read.

2 CHAIRMAN GROSSMAN: Mr. Bursey, any objection?

3 MR. BURSEY: No, sir.

4 CHAIRMAN GROSSMAN: Mr. Goldberg?

5 MR. GOLDBERG: If I can ask a point of  
6 clarification, there are areas which we believe in this  
7 prefiled testimony exceed the bounds of Mr. Bursey's  
8 contention. I do not know if I understood the Board to  
9 allow us the latitude to object in those particular areas  
10 where it did so, or does it just want to hear the testimony  
11 and regardless of having a continuing --

12 CHAIRMAN GROSSMAN: We have taken that into  
13 account in our ruling. However, we will allow you to point  
14 out specific objections on the basis of the matter or  
15 matters exceeding the Commission's regulations, and we would  
16 like to hear that as we have ruled with regard to pages 32  
17 and the top of 33.

18 MR. GOLDBERG: I do not believe we have any  
19 further objections on the grounds that they exceed the  
20 regulations. Our only objection was one of relevance, I  
21 suppose, if you will, to the contention, which I gather we  
22 need not belabor.

23 CHAIRMAN GROSSMAN: Mr. Wilson?

24 MR. WILSON: We have no objection, Your Honor.

25 CHAIRMAN GROSSMAN: Fine. Received in evidence

1 with the exclusion of page 32 and the first three lines of  
2 33.

3                   (The prefiled written testimony of Kenneth E.  
4 Beale follows:)

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1 MR. KNOTTS: At this point may I proceed with the  
2 exhibits associated with Mr. Beale's testimony?

3 CHAIRMAN GROSSMAN: Yes.

4 BY MR. KNOTTS: (Resuming)

5 Q Mr. Beale, has the company submitted a Virgil C.  
6 Summer Nuclear Station Radiation Emergency Plan including  
7 the Wilbur Smith Study which has been referred to several  
8 times in this proceeding regarding evacuation time  
9 assessment submitted to the NRC?

10 A Yes, sir.

11 MR. KNOTTS: I would like to have that station  
12 emergency plan marked as Applicant's Exhibit 30-A.

13 (The document referred to was  
14 marked Applicant's Exhibit  
15 No. 30-A for identification.)

16 BY MR. KNOTTS: (Resuming)

17 Q Did you supervise the preparation of that plan,  
18 Mr. Beale, in your role as coordinator?

19 A That is correct.

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1 MR. KNOTTS: That was the document which was  
2 transmitted with our memorandum of transmittal of the  
3 prefiled testimony and exhibits, item T on page 6, which I  
4 believe was also routinely sent to Mr. Burse since he was  
5 on the service list.

6 MR. LINENBERGER: Mr. Knotts, does the document  
7 that is being distributed now differ in any manner from item  
8 P?

9 MR. KNOTTS: P as in Peter? I am told that the  
10 distributed copies, some or all of them, did not have the  
11 Wilbur Smith study in with it which was supposed to be  
12 there, and it, as I understand it -- correct me if I am  
13 wrong -- the Wilbur Smith study is in with what has just  
14 been distributed, is that correct?

15 MR. MAHAN: Yes.

16 MR. KNOTTS: I am advised that that is correct.  
17 Other than that it does not differ.

18 All right. I would then offer --

19 CHAIRMAN GROSSMAN: Mr. Knotts, I would just as  
20 soon not take my copy from you now, and I believe --

21 DR. HOOPER: I will take mine later.

22 MR. KNOTTS: We will collect the Board's copies  
23 and send them to you. Mr. Horton will assist us in that  
24 regard, and we will see that you get your copies. We  
25 thought you would want to have copies for reference during

1 the proceeding. We will collect them back from you and send  
2 them.

3 CHAIRMAN GROSSMAN: Thank you.

4 MR. KNOTTS: I do not know what we are going to do  
5 with all this paper. This would seem an opportune time also  
6 to provide the Reporter and the parties and the Board with  
7 the exhibits -- wait a minute. I am getting ahead of myself.

8 Have I offered the exhibit? I meant to offer the  
9 exhibit Applicant's 30.

10 CHAIRMAN GROSSMAN: You have not marked them yet  
11 or offered them.

12 MR. KNOTTS: I would like to have the Virgil C.  
13 Summer Nuclear Station Radiation Emergency Plan, including  
14 the Wilbur Smith study which has been referred to, marked as  
15 Applicant's 30 and offered into evidence.

16 CHAIRMAN GROSSMAN: Any objection, Mr. Bursey?

17 MR. BURSEY: I have a question about the inclusion  
18 of the Wilbur Smith evacuation time assessments that is  
19 being appended to it. It is a revised time assessment that  
20 is significantly different than the previous one, reducing  
21 the time for evacuation to one-third of the original time  
22 estimates, and perhaps I would like the background on how  
23 that study was drawn up. Maybe that would remove or moot  
24 out any objections I might have about its inclusion.

25 CHAIRMAN GROSSMAN: You mean you have some

1 questions on voir dire as to the background of the Wilbur  
2 Smith study, is that right?

3 MR. BURSEY: Yes, sir.

4 CHAIRMAN GROSSMAN: You may proceed to ask those  
5 questions. Are they questions on voir dire of the witness,  
6 or do you have questions of Mr. Knotts?

7 MR. BURSEY: Well, I don't particularly care who  
8 answers them. Whoever feels most prepared to respond.

9 CHAIRMAN GROSSMAN: I believe you ought to direct  
10 the questions to Mr. Beale and have an authoritative answer  
11 on the record.

12 VOIR DIRE

13 BY MR. BURSEY:

14 Q Mr. Beale, are you familiar with the Wilbur Smith  
15 February 19, 1981 evacuation time assessments for the V.C.  
16 Summer plant?

17 A Yes.

18 Q Were you involved in the previous time estimates  
19 for evacuation that were in the record prior to Wilbur  
20 Smith's exhibit?

21 A That is correct.

22 Q Is there indeed a significant time difference  
23 between those two?

24 A Yes, there is.

25 Q Can you explain that difference?



1           A       Well, I think in the initial study, "Evaluation of  
2 Evacuation Time Assessments," performed by myself there was  
3 not a lot of guidance at that time on assumptions to be made  
4 for determination of evacuation time assessments.

5 Therefore, when I made the evacuation time assessments,  
6 there were some assumptions that I put in that report on  
7 average speed and certain road conditions, things like that.

8           All of those conditions were reviewed by the local  
9 county officials, and that was submitted to the NRC back in  
10 early 1980.

11          Q       And do you base, let's say, your average speed and  
12 adverse weather conditions on common sense?

13          A       In most cases, yes; that is, as I indicated, there  
14 was not a lot of guidance, and I am no transportation  
15 engineer. And there were a lot of assumptions drawn on my  
16 part on certain information.

17                 The Wilbur Smith study was a more detailed and  
18 computer program related to information obtained through  
19 local and state agencies on certain capacity of roads and  
20 certain more specific details for site specific -- a lot  
21 more detail than I had included.

22          Q       Did you participate in the Wilbur Smith  
23 estimations?

24          A       Not other than just a review.

25          Q       So you cannot speak to the specific differences

1 let's say in regards to speed over roads and adverse  
2 conditions.

3       A     Yes. In the section that you were speaking of  
4 earlier, there was a basis for those calculations on  
5 evacuation time assessments on the report that I did. And I  
6 think they are present, though I cannot recollect what the  
7 exact speeds, things like that, but that's part of my report.

8             The Wilbur Smith study, as I indicated earlier,  
9 got in a lot more specifics on capacity of roads because of  
10 their investigation into the county specific roads,  
11 highways, and et cetera.

12       Q     I am not sure I understood you. Did the Wilbur  
13 Smith time estimate rely in any fashion on your previous  
14 study?

15       A     No.

16       Q     Are there people that helped prepare the Wilbur  
17 Smith document present today?

18       A     No, there are not.

19       Q     And you are saying that the bases for the Wilbur  
20 Smith assessments are generic computerized assessments.

21       A     Well, they are the specific calculations for  
22 certain evacuation studies they have formulated into a  
23 computer program. All of the analysis was performed to meet  
24 the 0654 criteria, so they based this study on that criteria.

25       Q     Was this performed in situ in site specific visits

1 by Wilbur Smith and Associates to the area?

2 A That is correct.

3 Q And do you know if the inclusion of estimates for  
4 evacuating people without their vehicles differs  
5 significantly from yours?

6 A Well, I think the Wilbur Smith study in  
7 determining people without vehicles, they have suggested a  
8 means of evacuation of those people; and they had a  
9 difficult time in obtaining those people's names and  
10 locations. So with that in mind they placed an objective or  
11 a suggestion to the counties and to the utility, a means of  
12 handling those impaired people.

13 So in the back -- I think it is toward the end of  
14 that study it gives a means through a bus route network to  
15 evacuate those people. And from my understanding, some of  
16 these -- I cannot recollect if all of the counties, but most  
17 of the ones, three out of the four that I can recollect,  
18 will utilize those bus routes if an evacuation would be  
19 required.

20 Q But Wilbur Smith did not in fact identify those  
21 individuals that would require that type of special  
22 assistance.

23 A No, they did not.

24 MR. BURSEY: I would object to the inclusion of  
25 the Wilbur Smith study without a better understanding of how

1 it was developed and why their time estimates are so  
2 significantly different than Mr. Beale's.

3           CHAIRMAN GROSSMAN: Do I understand that you are  
4 objecting because you do not have any person here who could  
5 respond to questions on the Wilbur Smith study so as to lay  
6 a foundation for including that in the record?

7           MR. BURSEY: Yes, sir. That and Mr. Beale's  
8 answers were certainly not sufficient to allay my concerns  
9 as to the significance of the difference in time estimates.

10          CHAIRMAN GROSSMAN: Mr. Knotts, is there anyone  
11 available who can respond to questions on the Wilbur Smith  
12 study?

13          MR. KNOTTS: Let me ask the witness.

14          THE WITNESS: Yes, I am sure we can contact  
15 somebody with that agency to be in attendance.

16          MR. KNOTTS: Where are they located, Mr. Beale?

17          THE WITNESS: Here in Columbia.

18          MR. KNOTTS: We can do that at a later time, and  
19 if that is desired, we can produce that witness. As a  
20 matter of foundation, if it was submitted to the NRC staff  
21 for its review in the ordinary course of its review, that is  
22 adequate foundation. The absence of a sponsoring witness  
23 may very well go to the weight that can be given to the  
24 document, but it is admissible. But we will see what we can  
25 do about providing a witness, because we want the record to

1 be complete.

2           CHAIRMAN GROSSMAN: Well, I do not think that  
3 would be fair to have that put in the record without giving  
4 Mr. Bursey a chance to cross examine the people who were  
5 responsible for making the study so as to respond to his  
6 questions.

7           Mr. Goldberg, do you have anything to say on that?

8           MR. GOLDBERG: No, Judge.

9           MR. KNOTTS: Why don't we change the marking so  
10 that the station emergency plan is Applicant's --

11           CHAIRMAN GROSSMAN: Exhibit 30-A which we will not  
12 admit --

13           MR. KNOTTS: Well, the station emergency plan  
14 would be 30-A, and that would be admitted at this time, and  
15 the Wilbur Smith study would be 30-B, and we will hold that  
16 in abeyance.

17           CHAIRMAN GROSSMAN: Yes, fine.

18   (The document referred to was  
19   marked Applicant's Exhibit  
20   No. 30-B for identification.)

21           CHAIRMAN GROSSMAN: Do you have any objections to  
22 our receiving 30-A into evidence at this time; that is,  
23 everything that was submitted to you other than the Wilbur  
24 Smith plan?

25           MR. BURSEY: No, sir.

1 CHAIRMAN GROSSMAN: Mr. Goldberg?

2 MR. GOLDBERG: No objection.

3 CHAIRMAN GROSSMAN: Mr. Wilson?

4 MR. WILSON: No objection.

5 CHAIRMAN GROSSMAN: Applicant's Exhibit 30-A is  
6 admitted.

7 (The document previously  
8 marked Applicant's Exhibit  
9 No. 30-A for identification  
10 was received in evidence.)

11 MR. KNOTTS: If I may --

12 CHAIRMAN GROSSMAN: 30-B is offered, but we will  
13 reserve our ruling on that until we have some witness who  
14 can answer questions.

15 MR. KNOTTS: If I may, I would like to identify  
16 for the record the remaining emergency planning exhibits so  
17 that they can be found in one place on the record.

18 I believe the record will reflect that we have the  
19 agreement of the parties to obtain from each of the four  
20 counties and the state the various emergency plans, and some  
21 of them have previously been assigned numbers and some have  
22 not. And I will try to indicate that as I go along.

23 We are providing to the Board and to the parties  
24 today the most up-to-date copies that we could obtain, which  
25 as I understand it is completely up to date as of the date

1 of the testimony, for Newbury County Plan for Emergency  
 2 Operations of County Government -- that is Applicant's 11 --  
 3 Richland County - City of Columbia Emergency Plan is  
 4 Applicant's 12; Lexington County Emergency Operation Plan is  
 5 Applicant's 13; Fairfield County Emergency Operations Plan  
 6 is Applicant's 14. And let me stop there for a moment and  
 7 say that those numbers, as I understand it, were previously  
 8 assigned. They are already reflected in the record.

9           Next would be the State of South Carolina  
 10 Operational Radiological Emergency Response Plan for V.C.  
 11 Summer Site. I believe that was discussed on the record but  
 12 no number was assigned, and since 15 has not been used, we  
 13 will assign that 15-A.

14                                   (The document referred to was  
 15                                   marked Applicant's Exhibit  
 16                                   No. 15-A for identification.)

17           MR. KNOTTS: And the State of South Carolina  
 18 Technical Radiological Emergency Response Plan we will  
 19 assign as 15-B.

20                                   (The document referred to was  
 21                                   marked as Applicant's Exhibit  
 22                                   No. 15-B for identification.)

23           MR. KNOTTS: So the components of the state plan  
 24 relevant to Summer are 15-A and 15-B. We have covered  
 25 Applicant's --

1 MR. LINENBERGER: Excuse me, Mr. Knotts.

2 MR. KNOTTS: Yes, Judge.

3 MR. LINENBERGER: The last item which you  
4 indicated you are identifying as 15-B --

5 MR. KNOTTS: Is the State of South Carolina  
6 Technical Radiological Emergency Response.

7 MR. LINENBERGER: Is that equivalent to item J in  
8 your May --

9 MR. KNOTTS: No, sir. That is O. 15-A is item J,  
10 and 15-B is item O.

11 MR. LINENBERGER: Thank you.

12 MR. KNOTTS: And 15-C -- I beg your pardon -- 31  
13 is item HH on the last page, which relates to -- well, it is  
14 styled Appendix B, Annex T-7, South Carolina Disaster  
15 Preparedness Plan. That relates to the matter of  
16 transportation accidents, not Virgil C. Summer specifically  
17 but to transportation accidents.

18 (The document referred to was  
19 marked Applicant's Exhibit  
20 No. 31 for identification.)

21 MR. KNOTTS: And I think that covers it.

22 CHAIRMAN GROSSMAN: Are you offering any of these  
23 at this time?

24 MR. KNOTTS: I think the four counties -- I do not  
25 have the transcript.



1 CHAIRMAN GROSSMAN: I think they were already  
2 offered.

3 MR. KNOTTS: I think they were already offered and  
4 accepted. We were simply going to provide them. I am  
5 unclear about the state plan. Perhaps to be careful I ought  
6 to say that I am offering all of them and ask that all of  
7 them be received.

8 CHAIRMAN GROSSMAN: Mr. Bursey, do you have any  
9 objection?

10 MR. BURSEY: No, sir.

11 CHAIRMAN GROSSMAN: Mr. Goldberg?

12 MR. GOLDBERG: No objection.

13 CHAIRMAN GROSSMAN: Mr. Wilson?

14 MR. WILSON: No objection.

15 CHAIRMAN GROSSMAN: They are all received then.

16 (The documents previously  
17 marked as Applicant's Exhibit  
18 Nos. 15-A, 15-B, and 31,  
19 respectively, were received  
20 in evidence.)

21 MR. KNOTTS: Judge Linenberger, continuing with  
22 the direct.

23 BY MR. KNOTTS: (Resuming)

24 Judge Linenberger had asked me to provide Mr.  
25 Seale a listing of the agreements we have with these various

1 emergency planning agencies. Could you proceed to do that  
2 now?

3       A       I will go down through and indicate by counties  
4 and also state agencies that we have an agreement with.  
5 Starting with Fairfield County, in April of 1980 the company  
6 came to an agreement with the county on providing funds on  
7 emergency medical services. I do not know if the Judge  
8 would like the dollar figures or not, but we -- I can give  
9 that to you if you would like.

10               MR. LINENBERGER: I think if you could summarize  
11 the scope of the services.

12               THE WITNESS: Okay.

13               MR. LINENBERGER: And give the dollars, that would  
14 be helpful.

15               THE WITNESS: I would be glad to.

16               For Fairfield County, as I said, we have an  
17 agreement for emergency medical services through the  
18 Fairfield County emergency medical services organization.  
19 We also have an agreement on the means of the siren system  
20 for the county in Fairfield.

21               I maybe need to clarify that. In placing the  
22 siren system in, in our discussions and meeting with the  
23 county, the four counties, it was agreed upon by all parties  
24 that the activation of the siren system should be from a  
25 central point.

1           The counties agreed that that central point would  
2 be the control room at the Virgil C. Summer Nuclear Station  
3 or in proximity to the control room. The agreements that I  
4 am talking about is since we have no jurisdiction to  
5 activate the siren, that comes to the county. We drew  
6 agreement with the counties to where they must inform or  
7 notify us that we can activate the siren; we recommend, and  
8 they tell us to activate. So that is an agreement on the  
9 siren system for activation. All four counties have signed  
10 that agreement, in summarizing that particular agreement.

11           An additional agreement that we have is with  
12 Richland County, and that agreement is for housing, feeding,  
13 and transportation of residents from the county, Richland  
14 County, located in the ten-mile emergency planning zone.

15           We also have just recently, getting to the state,  
16 have come up with an agreement with the State of South  
17 Carolina, tied in primarily with the Emergency Preparedness  
18 Division of the Adjutant General's Office on funding for  
19 nuclear facilities emergencies -- fixed nuclear facilities  
20 -- excuse me -- emergency planning relating to exercising  
21 continuous update of emergency plans. And this agreement is  
22 between SCE&G, Duke Power Company, Carolina Power and Light  
23 and the State of South Carolina.

24           MR. LINENBERGER: Excuse me, sir, but what do you  
25 mean by funding fixed facilities? Are you talking about --

1 well, would you explain it, please?

2 THE WITNESS: Okay. What that implies when we say  
3 fixed nuclear facilities is primarily terminology used by  
4 the state in determining its emergency planning. We are  
5 specifically talking about nuclear power reactors from a  
6 utility standpoint, and that is why I made reference to  
7 Duke, Carolina Power and Light, and SCE&G.

8 The funding, which was just recently an agreement  
9 signed, is \$55,000 per utility per year, and it is running  
10 until June '82, June 30, 1982, upon which time it would be  
11 reissued and signed by all three parties.

12 MR. LINENBERGER: I guess I am a bit confused.  
13 What does that funding accomplish?

14 THE WITNESS: It accomplishes for the state  
15 through the Emergency Preparedness Division additional  
16 funding for them for emergency planning such as for  
17 exercises, drills, et cetera for the state in these three  
18 utilities.

19 Right now each utility has a nuclear facility  
20 within South Carolina so -- and of course I think with the  
21 onset of emergency planning has pushed the budget of a lot  
22 of the state, and they requested funding through the  
23 utilities, and that was agreed upon just recently.

24

25

1 THE WITNESS: Now, as far as the additional dollar  
2 values, I can give those now if the judge would like.

3 MR. LINENBERGER: Yes.

4 THE WITNESS: Okay, for Fairfield County on  
5 emergency medical services that we provided, and primarily  
6 what that was for was for ambulance type of equipment and  
7 additional facilities, close proximity to the Virgil C.  
8 Summer Station. Over a four year period the company has  
9 agreed to pay approximately \$236,000. Additional funding  
10 has been provided to Fairfield County over the last, I would  
11 say, approximately six months for emergency planning aspects  
12 for the county, which is approximately \$1800.

13 Newberry County, we have provided additional  
14 financial support, and I may clarify, this funding was  
15 primarily what I am talking about now, the \$1800 for  
16 Fairfield County was primarily for services such as clerical  
17 support, reproduction of plans, some equipment such as  
18 communications, etc., that they had requested through the  
19 utility.

20 In Newberry County, additional financial was  
21 approximately \$2100 over the last, I would say, six months,  
22 and once again, the same type of request for additional  
23 services such as clerical or reproduction, some telephone  
24 equipment, etc.

25 Lexington County, we have provided approximately

1 \$1600, likewise for such things as telephone equipment, etc.

2           And Richland County, we have provided financial  
3 support of approximately, that I am aware of, approximately  
4 \$30, which was primarily for assistance during the drill  
5 exercise on May 1.

6           To my knowledge, that is the extent of the  
7 agreements that we have with the four counties and the state  
8 on emergency planning.

9           MR. LINENBERGER: On this general subject area, in  
10 response to, as you said, Mr. Knotts, a question I had  
11 raised earlier, somewhere during the earlier discussion, I  
12 seem to recall there was mention of some transportation  
13 vehicles, and I do not -- that the Applicant would supply.

14           Now maybe my memory is incorrect here, but I do  
15 not recall your mentioning anything about transportation  
16 vehicles, Mr. Beale.

17           Can you --

18           THE WITNESS: Yes, I can clarify that. I think  
19 there were two references in the previous testimony. One  
20 was by Richland County, I made the statement that these were  
21 the agreements for emergency planning that I am aware of.  
22 There is an agreement with the company to Richland County  
23 Civil Defense for bus services in case of emergency such as  
24 ice storms or etc. We have, in our agreement that I pointed  
25 out in earlier statement, I said we do have an agreement

1 with Richland County for housing, feeding and  
2 transportation. So that would include the buses for  
3 Richland County.

4           Lexington County, I think in their previous  
5 statement a couple of weeks ago, had indicated a request or  
6 they would like the use of buses from SCE&G. They do not at  
7 this time have an agreement with the company on that. Of  
8 course, we are always willing to discuss with them as we  
9 have in the past these types of services, and I am sure we  
10 will do so. But there is no such agreement with Lexington  
11 County at this time.

12           MR. BURSEY: Could you repeat the amount of  
13 financial assistance for Fairfield County, please?

14           THE WITNESS: Okay. There were really two figures  
15 I gave. First is on the emergency medical services  
16 agreement that we have worked out with the county which was  
17 initiated in April of 1980 and runs through for four years,  
18 through April of '84, and that figure is approximately  
19 \$236,000. That was primarily for emergency medical  
20 transportation, which the county placed a 24-hour,  
21 round-the-clock ambulance which is approximately 2.5 miles  
22 away from the facility to serve not only Summer Station but  
23 also the residents in the western part of Fairfield County.  
24           The other figure that I gave was somewhere  
25 approximately \$1800. That \$1800 was primarily for use by

1 the county in obtaining such things as clerical support,  
2 some equipment, telephone equipment, things of that nature,  
3 up to this point.

4           MR. KNOTTS: I would like to point out that Mr.  
5 Baehr, who has previously testified, had prefiled testimony  
6 relating to one of the Fairfield emergency planning  
7 contentions which is not addressed in Mr. Beale's testimony,  
8 and I would like to inquire whether it would be an  
9 appropriate -- does the Board wish to hear that testimony  
10 that related to the placement of thermal luminescent  
11 docimeters, and how many there are?

12           CHAIRMAN GROSSMAN: That contention we do not care  
13 to hear.

14           MR. KNOTTS: Very well. Thank you.

15           I think that completes Mr. Beale's summary and the  
16 direct.

17           (Board conferring.)

18           CHAIRMAN GROSSMAN: We will take our luncheon  
19 break now and we will return at 10 minutes of 2:00.

20           (Whereupon, at 12:50 o'clock p.m., the hearing in  
21 the above-entitled matter recessed, to reconvene at 1:50  
22 o'clock p.m. the same day.)

23

24

25



AFTERNOON SESSION

1

2

1:54 p.m.

3

CHAIRMAN GROSSMAN: Mr. Knotts, has your witness  
4 completed his summary?

5

MR. KNOTTS: Yes, I think he has a report on  
6 Wilbur Smith.

7 Whereupon,

8

KENNETH E. BEALE,

9 the witness on the stand at the time of recess, resumed the  
10 stand and, having been previously duly sworn, testified  
11 further as follows:

12 THE WITNESS: Yes. I made a telephone call during  
13 the lunch break and they will have a Mr. Jack Crosby who  
14 will be available at approximately 3:00 o'clock.

15 CHAIRMAN GROSSMAN: Thank you.

16 MR. KNOTTS: And somebody perhaps could help me.  
17 I have forgotten where we stand. I think the summary has  
18 been completed, and Mr. Beale's testimony has been  
19 received. Has it?

20 THE WITNESS: I just responded to Judge  
21 Linenberger's question on agreements.

22 MR. KNOTTS: And have I offered -- .

23 CHAIRMAN GROSSMAN: The testimony had been  
24 received, yes.

25 MR. KNOTTS: Very well.

1           CHAIRMAN GROSSMAN: The only document that has not  
2 been received is that Wilbur Smith -- .

3           MR. KNOTTS: That is correct, and the gentleman  
4 will be here, as Mr. Beale has just reported, about 3:00  
5 o'clock in that regard.

6           If that has been received, that completes the  
7 direct presentation and Mr. Beale is available for  
8 questioning. I should also note for the record that during  
9 the noon recess I distributed to the Board and to the  
10 parties the pages which were part of Mr. Wooten's testimony,  
11 but not included in Mr. Bursey's exhibit of that testimony.  
12 This is Applicant's 19; I think it has already been received  
13 but copies had not been provided.

14           CHAIRMAN GROSSMAN: Right. Mr. Bursey, can you  
15 proceed?

16           MR. BURSEY: I would like to take a moment if I  
17 can and try and clarify for my understanding as well as the  
18 record exactly the Board's position on emergency planning  
19 issues as they relate to core melt accidents. If I could  
20 read from the Federal Register, nuclear power plant accident  
21 considerations under national environmental policy and for  
22 the U.S. Nuclear Regulatory Commission that was published  
23 6/13/80 as it relates to 10 CFR Parts 50 and 51.

24           It says, "It is the Commission's position that its  
25 environmental impact statements shall include considerations

1 of site-specific environmental impacts attributable to  
2 accident sequences that lead to release of radiation and of  
3 radioactive material, including sequences that can result in  
4 inadequate cooling of -- "

5 CHAIRMAN GROSSMAN: You are going a little fast.

6 MR. BURSEY: "... inadequate cooling of reactor  
7 fuel and to melting of the reactor core. In this regard,  
8 attention shall be given both to the probability of  
9 occurrence of such releases and to the environmental conse-  
10 quences of such releases. This statement of interim policy  
11 is taken in coordination with other ongoing safety-related  
12 activities that are directly related to accident considera-  
13 tions in the areas of plant design, operational safety,  
14 siting policy and emergency planning."

15 CHAIRMAN GROSSMAN: And you have a question on  
16 that for Mr. Goldberg?

17 MR. BURSEY: Yes, sir. What is puzzling me is  
18 that it appears that it is within the Commission's  
19 guidelines for us to discuss, as I just read, environmental  
20 impacts of core melts. But it appears that the Board here  
21 is saying that in that such an accident would probably have  
22 consequences beyond the ten-mile zone, that the ten-mile  
23 question takes precedence over the consideration of core  
24 melt impacts, whether the core melt impacts are considered  
25 within the ten-mile zone or in the 50-mile ingestion zone.

1 And therein lies my confusion.

2           CHAIRMAN GROSSMAN: I think that your question  
3 should best be directed to Mr. Goldberg rather than the  
4 Board. It is the staff that is saying that the core melts  
5 do not have to be taken into account in the emergency  
6 planning because a core melt resulting in a large release of  
7 radioactivity would implicitly contradict the ten-mile EPZ,  
8 and that therefore, the staff does not require that that  
9 type of core melt and large release of radioactivity be  
10 taken into account in the emergency plan.

11           So I think Mr. Goldberg is the proper person to  
12 ask that question of.

13           MR. GOLDBERG: Well, the document that Mr. Bursey  
14 referred to has, in fact, reflected a change in Commission  
15 practice with regard to the considerations of Class 9  
16 accidents pursuant to its responsibilities under the  
17 National Environmental Policy Act. That is all that this  
18 statement does in terms of redirecting Commission policy.

19           Now, Mr. Bursey was given an opportunity following  
20 the issuance of the supplement to the DES to seek to intro-  
21 duce if he felt he could a contention regarding Class 9  
22 accidents which under this policy statement are solely  
23 circumscribed to those cases where there are special circum-  
24 stances. And I am not reading now but I am referring to the  
25 Federal Register which contains the statement on interim

1 policy to which Mr. Bursey refers. And that is 45 FR page  
2 40101, and at page 40102 it states the kinds of special cir-  
3 cumstances which the Commission has recognized in the past  
4 as providing a basis for individual consideration of such  
5 issues.

6           And those are an instance such as in the offshore  
7 power case where you had a floating rather than land-based  
8 nuclear power plant, or in the case of an early site review  
9 for Perry where you had a high population density area  
10 instead of an average population density area. I might add,  
11 by the way, that from the testimony this is a sparsely-  
12 populated area.

13           Now, back to the position on the emergency plans.  
14 The Commission's emergency planning rules were adopted after  
15 extensive opportunity for public comment. I think there  
16 were over 200 comments received, and the Commission  
17 determined that it would establish 10 and 50-mile emergency  
18 planning zones, and it described what kind of protective  
19 action would be required within each zone. And it took into  
20 account in the establishment of its requirements the fact  
21 that you could have a core melt accident with the releases  
22 described in the reactor safety study.

23           And the underlying basis for that statement is the  
24 NUREG document NUREG-0654, to which I referred. So to intro-  
25 duce some specific Class 9 accident, number one, I think is

1 tardy and would, in all likelihood, run afoul of the  
2 Commission's interim policy statement on accidents because  
3 he would be given an opportunity to do it and there is no  
4 showing of special circumstances. And number two, contra-  
5 vene the Commission's emergency planning requirements,  
6 implicit within which was the fact that they would have a  
7 core melt accident. And whatever level of planning the  
8 Commission decided was adequate to deal with that kind of an  
9 accident has already been incorporated in the emergency  
10 planning requirements.

11           And I think there are 16 planning standards and we  
12 judged the adequacy of the station plans against those 16  
13 planning standards.

14           CHAIRMAN GROSSMAN: Well, I have one perhaps small  
15 correction to what you just said, Mr. Goldberg, or perhaps  
16 there is some imprecision in the language. But what Mr.  
17 Bursey read to us covered more than NEPA; it referred also  
18 to siting and emergency planning. Yes, Mr. Knotts?

19           MR. KNOTTS: May I respond to that?

20           CHAIRMAN GROSSMAN: Certainly.

21           MR. GOLDBERG: I would be glad to respond but go  
22 ahead, Joe.

23           MR. KNOTTS: If I could borrow the piece of paper  
24 from Mr. Bursey. As I understand what the document from  
25 which Mr. Bursey was reading says, toward the very end it

1 said in the interim, however, and pending completion of rule-  
2 making activities in the area of emergency planning, -- and  
3 I am omitting the other areas of rulemaking -- all of which  
4 involve considerations of serious accident potential, the  
5 Commission finds it essential to improve its procedures and  
6 so on.

7           On completion of the rulemaking activities in  
8 these areas, the Commission intends to pursue possible  
9 changes or additions to Part 51 to clarify its position on  
10 the role of accidents risks under NEPA.

11           As I understand it, the Commission has completed  
12 its emergency planning rulemaking, and what Mr. Bursey was  
13 referring to was -- I am not sure I can characterize it  
14 adequately but I will attempt by using the word interim --  
15 if his argument was valid, it was valid during an interim  
16 period which has passed.

17           CHAIRMAN GROSSMAN: Yes. What you are saying is  
18 that the modification of 50.47 supercedes that interim  
19 rule. Is that right?

20           MR. KNOTTS: That is the way I understand it, and  
21 it was foreshadowed in that rule itself.

22           CHAIRMAN GROSSMAN: And again, I also always like  
23 to complete Mr. Goldberg's statements in this area in which  
24 he says that the core melt is taken into account by adding  
25 -- is taken into account by not having to be taken into

1 account in the particular case because it was taken into  
2 account and not included in 50.47, by virtue of that 10-mile  
3 EPZ. Does that correctly complete your statement, Mr.  
4 Goldberg?

5 MR. GOLDBERG: That would be a correct additional  
6 statement, yes, Judge.

7 (Laughter.)

8 MR. BURSEY: Judge Grossman, it seems to me that  
9 part of Mr. Goldberg's argument against the inclusion of a  
10 farther-ranging core melt discussion than he wants to see is  
11 that I needed to enter into the TMI -- post-TMI comment  
12 period to see that argument raised. However, I think he  
13 himself admits that the staff considered, pursuant to the  
14 afore-mentioned regulation, the core melt in this  
15 proceeding. And so, I considered all along that my  
16 emergency concerns did indeed encompass that.

17 And when Mr. Goldberg admits that the staff  
18 considered them, I never felt and still do not feel that it  
19 was necessary for me to raise an additional issue pursuant  
20 to the TMI question. I feel that that question is part and  
21 parcel of this proceeding.

22 CHAIRMAN GROSSMAN: I believe Mr. Goldberg's  
23 position on that -- and he may correct me -- is that it was  
24 taken into account in the DES and in the FES but not as part  
25 of the emergency planning requirements. And that the period



1 to object to anything included in the DES has expired and no  
2 requests were made with regard to changes along those  
3 lines. Does that fairly state your position, Mr. Goldberg?

4 MR. GOLDBERG: Yes, that is correct.

5 CHAIRMAN GROSSMAN: I think at this point we can  
6 conclude this discussion now. I do not interpret this  
7 discussion or the discussion we had with regard to Dr. Kaku's  
8 testimony as inhibiting you from asking questions of the  
9 applicant's emergency planning witness or the staff's  
10 emergency planning witness as to what they actually did  
11 consider, and what is included within their plans.

12 So that, you know, I do not see that this  
13 discussion or the Board's conclusion necessarily restricts  
14 you from questioning the witness right now.

15 MR. BURSEY: It appears in some manner to  
16 constrain me as regards the contention that was struck from  
17 Mr. Beale's testimony as well as certainly Mr. Kaku's direct  
18 testimony in regard to accident impact probabilities within  
19 the 10-mile zone that would be the result of a core melt.  
20 But I will just leave my puzzlement and objections and every-  
21 thing else on the record and we will proceed with the cross  
22 examination of Mr. Beale, if the Board is ready.

23 CHAIRMAN GROSSMAN: Please do.

24 (Pause.)

25 CROSS EXAMINATION

1 BY MR. BURSEY:

2 Q Mr. Beale, how long have you been with the company?

3 A Since September of 1976.

4 Q Well, if we could for the beginning of our  
5 discussion here digress to May 1973 and you may not be able  
6 to respond to this, but I have a question about the  
7 company's request for an amendment of their permit. This  
8 amendment deletes Condition 2.E.(5) which requires South  
9 Carolina Electric and Gas Company to establish a radiation  
10 monitoring program during facility operations to assure that  
11 the dosage to the thyroid organ of a child through the  
12 pasture-cow-milk pathway not exceed a designated value. And  
13 I am wondering, sir, why the company filed for such an  
14 amendment.

15 MR. KNOTTS: That calls for a legal conclusion. I  
16 will be happy to address it.

17 MR. BURSEY: It may, indeed, also have some  
18 emergency planning ramifications that Mr. Beale may feel  
19 adequate to address.

20 CHAIRMAN GROSSMAN: Mr. Knotts, before we get an  
21 answer, I am not sure whether it does involve legal conclu-  
22 sions or legal positions or -- .

23 MR. KNOTTS: The witness can state what he knows.

24 CHAIRMAN GROSSMAN: Fine, please do.

25 THE WITNESS: I cannot really speak to that

1 particular amendment as far as -- because I was not present  
2 with the company at that time. I am aware that a  
3 radiological environmental monitoring program is in  
4 existence, but as far as that specific document that you  
5 have referenced, I am not aware of it.

6 CHAIRMAN GROSSMAN: Mr. Knotts?

7 MR. KNOTTS: As reported in my letter to the Board  
8 dated early in December -- I do not have in front of me --  
9 of last year, that amendment was the result of an Appeal  
10 Board decision overruling the Licensing Board in the  
11 construction permit stage with respect to the grass-cow-milk  
12 ingestion pathway monitoring.

13 MR. BURSEY: I was seeking some company position  
14 or emergency planning position on your decision not to  
15 monitor in the 50-mile ingestion zone, and not necessarily  
16 the Appeal Board ruling or the legalities of it. But the  
17 corporate decision behind your decision to seek such an  
18 amendment.

19 THE WITNESS: Well, as I understand your question  
20 -- your statement -- I really am not able to respond to that  
21 from the standpoint of prior to my time being here. I can,  
22 you know, -- as far as related to the 50-mile ingestion  
23 pathway as in reference to 0654, yes, I can address that.  
24 But that particular statement I cannot.

25 BY MR. BURSEY (Resuming):

1 Q Well, let's do that, then, briefly. Let's talk  
2 about the 50-mile ingestion zone and what you see as the  
3 applicant's responsibility therein.

4 A The applicant's responsibility for the 50-mile  
5 ingestion pathway is primarily of notification to the state  
6 and local agencies; primarily, the state. And it is the  
7 state's responsibility to coordinate the activities for the  
8 50-mile ingestion pathway.

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1 Q And the Applicant has no plans or requirements to  
2 do any monitoring in the ingestion zone?

3 A None that I am aware of.

4 Q Mr. Beale, in your prefiled testimony on page 2,  
5 you mentioned that agreements with hospitals were  
6 established to care for injured plant personnel.

7 Do you -- Can you expound any on agreements with  
8 hospitals for anyone other than plant personnel?

9 A If you are speaking -- if you are speaking on a  
10 local level from the standpoint of local county government,  
11 I am only aware of knowledge of what the counties have  
12 discussed with local hospitals, but for SCE&G specifically  
13 there are only two medical facilities that we have agreements  
14 with, one being Richland Memorial Hospital and the other  
15 being Oak Ridge, Tennessee with the React group.

16 Q And those agreements are for workers.

17 A In response to your question, I think you said was  
18 that just for workers?

19 Q Yes, sir.

20 A Those are for SCE&G employees at the Summer  
21 Station. It does not necessarily mean employees. It could  
22 be a contractor personnel, whatever, that is working at the  
23 facility.

24 Q But essentially these arrangements that you have  
25 made with hospitals are for people that are either directly

1 in the employ of SCE&G, subcontractors, and more  
2 specifically some of that would be within the site  
3 boundaries, doing something for the company.

4 A That is a correct statement.

5 Q As distinguished from the civilian population.

6 A Correct.

7 Q On page 6 -- well, let's see. First, on page 5  
8 here we have mention of volunteer fire departments, and I  
9 believe you amended that from surrounding the Summer Station  
10 to Fairfield County.

11 A Correct.

12 Q Have agreed to respond to requests for aid from  
13 the station in fighting fires at the station.

14 Can you give me the reason for that exclusion of  
15 the volunteer fire departments in the other three counties?

16 A Well, primarily at the time when we developed  
17 agreements, Fairfield County was the -- of course, being the  
18 host county, we felt the need to coordinate the need through  
19 that county in volunteer fire companies. So therefore we  
20 drew up agreements with Fairfield County alone.

21 Some of the other counties, such as Lexington and  
22 Richland County are a fair good distance from the station,  
23 and also in Newberry County there was some question at one  
24 time in drawing agreements of county boundaries where fire  
25 companies not necessarily would cross the boundary of one

1 county or another. So we concentrated our efforts in  
2 Fairfield County.

3 Q Did you ever have letters of memoranda from  
4 volunteer fire agencies outside of Fairfield County?

5 A You mean as far as agreements to support fires at  
6 the Summer Station?

7 Q Yes, sir.

8 A Not to my knowledge.

9 Q Now, what type of training have the volunteer fire  
10 departments in Fairfield County had in regards to  
11 radiological related fires?

12 A Are you talking specifically of what SCE&G or  
13 Virgil C. Summer has provided?

14 Q Yes, sir.

15 A Okay.

16 We have provided some training for -- I think  
17 there are seven volunteer fire companies within the area.  
18 We provided an orientation of the station, plus some basic  
19 radiological safety practices, and also what firefighting  
20 equipment was available at the station, its location,  
21 various capacities, etc., for these people, for possible use  
22 if they were called upon at the station.

23 Q And has there been any other training by any state  
24 agencies in regards to fighting fires at the V. C. Summer  
25 plant?

1           A       I would say there has been. I cannot  
2 all-inclusively say all the fire companies. I know myself  
3 personally I have participated in some training for some  
4 volunteer fire companies, but not all. And so I cannot  
5 speak for all of them, but some of them have.

6           Q       You say you participated, not in your capacity as  
7 an SCE&G employee.

8           A       Well, at a capacity as requested by volunteer fire  
9 companies for some training, and I responded accordingly.

10          Q       I understand that there was a recent drill or  
11 exercise of the emergency plan at the V. C. Summer plant.

12          A       Correct.

13          Q       And you supervised that for the plant.

14          A       Well, I coordinated all of the planning and -- for  
15 the exercise. I would not say I supervised the exercise.

16          Q       Can you just briefly summarize what you feel the  
17 correspondence between SCE&G and various federal and state  
18 agencies who were involved have identified as deficiencies  
19 in that drill?

20          A       Well, in our particular exercise of May 1, and my  
21 recollection of memories here, the NRC, in evaluating the  
22 exercise for SCE&G, came up with some deficiencies, minor in  
23 nature. As they indicated, some of these included  
24 communications, minor communications problems, some general  
25 practices of following certain routes within the plant such



1 as possibly they could have gone through a radiation area  
2 versus not a highly radiation area. This would come about  
3 through additional training of the people at the station.

4           From the standpoint of FEMA, their comments were  
5 primarily geared to the off-site, being the state and  
6 locals, and jogging my memory, I think some of the comments  
7 of deficiencies were primarily in the area of, naturally,  
8 the alerting system to the public because it was not  
9 installed to meet the criteria of 0654, and some questions  
10 or concerns of their forward emergency operations center.

11       Q     Now, in that public notification, I understand  
12 that the hypothetical site emergency was declared at 10:15,  
13 but the emergency broadcast system was not activated until  
14 10:50, and that the required 15 minutes was thereby exceeded  
15 by the event 40 minutes.

16           Can you speak a little bit to that problem, and  
17 wherein did that problem lie?

18       A     That particular -- if I remember and recollect,  
19 the state response to that was at the time of a site  
20 emergency being declared for the scenario of the Summer  
21 Station May 1, there was no release of radioactive material  
22 at that time, and based on the guidelines for notification  
23 of the public, there is no requirement for such a  
24 notification under a site emergency.

25           So therefore, even though they could notify, as

1 they did, even under an unusual event, an alert condition,  
2 the time restraint of the 15 notification to the public was  
3 not really applicable at that point.

4 Q Well, what then was the problem that was pointed  
5 out in the FEMA critique of the drill, that said that the  
6 current public alerting and notification system does not  
7 meet the NUREG-0654 criteria?

8 A That is what I just stated as far as one of the  
9 deficiencies, and as far as my understanding is that during  
10 the time of the May 1 exercise, the only means available to  
11 the four counties to notify the public was by means of  
12 emergency vehicle sirens, and that the permanent system of  
13 sirens, as addressed this morning, was not installed. That  
14 will be installed, and it is my understanding that that  
15 deficiency, once they are installed and tested, would be  
16 eliminated.

17 Q I see.

18 And did that account for the 40 minute delay in  
19 the notification?

20 A No. That would not account for -- sometimes there  
21 is confusion in the fact of notifications and alerting of  
22 the public. The notifications as far as the 15 minute  
23 criteria for notifying is two-fold. One is to have the  
24 capability of notifying state and local agencies within 15  
25 minutes, and also notification of the public within 15

1 minutes.

2           Now, the notification of the public within 15  
3 minutes in my understanding is by means of such devices as a  
4 siren. The EBS system, in notifying for instructional  
5 purposes to the public, may not all include the 15 minute  
6 criteria.

7           Now, understandable, if the siren goes off, it is  
8 quite obvious that the public, when they go inside and turn  
9 on the radios, that they would want to hear instructions,  
10 but I think that -- my understanding with the state is that  
11 that would take place, but in your statement of a site  
12 emergency, there was no requirement for that to take place  
13 within 15 minutes.

14           In other words, it could have gone an hour, it  
15 could have gone 45 minutes. That is my understanding on  
16 that.

17           CHAIRMAN GROSSMAN: I am sorry.

18           Are you then disputing the critique that was given  
19 as to your missing the 15 minute deadline?

20           THE WITNESS: Well, in reference to what the  
21 question was, the 15 minutes of notification was provided by  
22 the state, not the utility.

23           Okay, we provided our 15 minutes. I think the  
24 question that was raised was FEMA's statement that they did  
25 not notify the public within 15 minutes. What I am stating

1 is that it is my understanding of the criteria that under a  
2 site emergency for that time, with no releases going on,  
3 there is no requirement to give that 15 minute notification.

4 CHAIRMAN GROSSMAN: And there were not postulated  
5 releases for that emergency exercise?

6 THE WITNESS: Not at that time.

7 CHAIRMAN GROSSMAN: So that you are saying the  
8 FEMA critique related only to the state's obligations.

9 THE WITNESS: That is correct.

10 BY MR. BURSEY: (Resuming)

11 Q Mr. Beale, the last sentence in that Item 2,  
12 deficiencies noted in the V. C. Summer exercise says that  
13 significant off-site radiation levels existed and the public  
14 was not notified in a timely manner. So I am having some  
15 difficulty reconciling what you are saying and what this  
16 says.

17 A You are talking about a FEMA report?

18 Q Yes, sir.

19 A I cannot answer from the standpoint of FEMA. All  
20 I know is that during the exercise with a site emergency,  
21 there were no releases of radioactive material at that point  
22 in time for off-site notification to the general public.

23 Q Okay. Well --

24 CHAIRMAN GROSSMAN: You mean there were not  
25 postulated any releases.

1 THE WITNESS: That is correct.

2 BY MR. BURSEY: (Resuming)

3 Q Then we can assume the FEMA critique is mistaken.

4 A That I cannot answer.

5 Q Okay.

6 CHAIRMAN GROSSMAN: Mr. Goldberg?

7 MR. GOLDBERG: Well, the author will be testifying  
8 -- that is Mr. Richardson, so you might want to pursue that  
9 matter with him.

10 BY MR. BURSEY: (Resuming)

11 Q Was there some difficulty experienced during the  
12 drill in keeping recording and posting radiation levels in  
13 the emergency operations center?

14 A There was at one time a question as far as some  
15 information on meteorological conditions, if that is what  
16 you have reference to. That was cleared up very quickly in  
17 the exercise, and therefore corrected throughout the drill.

18 Q Item 15 in the same FEMA letter mentions advice to  
19 monitoring teams to take potassium iodide was given.  
20 However, team members could have been exposed to the plume  
21 before taking potassium iodide. Information regarding  
22 radiation levels was not displayed in the Fairfield County  
23 EOC.

24 Where were the monitoring teams that were  
25 hypothetically exposed, do you know?

1           A     Okay. I think that is really in reference to  
2 state monitoring teams, and I cannot really -- you know, our  
3 monitoring teams I can speak to, but in that reference I  
4 think they were addressing state monitoring -- when I say  
5 state, from the Department of Health and Environmental  
6 Control, Bureau of Rad Health.

7           Q     Let me just for a minute go back to that 15 minute  
8 notification.

9                     Now, the company's responsibility is for  
10 notification of the public within the ten mile zone within  
11 15 minutes after the declaration of an emergency with  
12 off-site radiation releases, is that right?

13          A     The responsibility of the utility is to notify  
14 state and local governments within 15 minutes of an  
15 emergency condition at V. C. Summer Nuclear Station.

16          Q     And so you actually have no mandate to notify  
17 actually, do the notification process via sirens or whatever  
18 mechanism for the public.

19          A     That is correct.

20          Q     And that your siren system that you are working on  
21 putting in place now is a volunteer mechanisms that you are  
22 taking on.

23          A     Yes.

24          Q     Were the mobile sirens actually used during the  
25 drill?

1 A Yes, to my understanding, yes.

2 Q And was that just in a certain area of Fairfield  
3 County?

4 A I am not aware. I would anticipate that would be  
5 both in Newberry and Fairfield County, but I cannot -- I do  
6 not know for sure.

7 Q On page 8 of your testimony you refer to, in the  
8 second paragraph, second sentence of the second paragraph,  
9 SCE&G has indicated in Table 5-1 that the staffing  
10 requirements for the 30 minute response can be fully  
11 implemented in 45 minutes.

12 I do not understand that sentence. Can you help  
13 me with that?

14 A In the radiation emergency plan for V. C. Summer,  
15 we have indicated via Table 5-1 the staffing response of the  
16 plant for -- and there are two degrees, really, a 30 minute  
17 response capability and a 60 minute response capability. As  
18 it presently exists, the company has provided information on  
19 the number of people it can submit or have available within  
20 30 minutes. The criteria in 0654, if I recollect, calls for  
21 ten total people available. We do not have available all of  
22 those ten as far as emergency response. All of them can be  
23 met in 45 minutes. That is what that statement is  
24 responding to.

25 Q I see.

1           On page 9, the second paragraph mentions "to  
2 assume proper coordination and understanding of authority  
3 and responsibility, all of the local support organizations  
4 which have agreed to support the Summer station have been  
5 provided specialized training and instructions in the area  
6 of emergency response."

7           Does that training include or has that training  
8 included the explanation of core melt accidents?

9           A     No.

10          Q     What does that training include?

11          A     Well, I think you have to break it down to  
12 specifics. In the area of, as we have already addressed,  
13 fire, we provided training to the fire and specifics of the  
14 radiological aspects of fighting a fire, and equipment,  
15 whatever.

16                From the medical transportation end, we provided  
17 training to the medics, EMTs, Fairfield County Emergency  
18 Medical Services on contamination, contamination control,  
19 radiation exposure, also equipment, what locations of  
20 equipment we have at the station, and an orientation program  
21 for the station so they would be aware of where to go if  
22 called upon.

23                Tied in with the medical transportation, we also  
24 provided training to the Army MAP, Mobile Ambulance Program,  
25 and provided training to them with the same likelihood as we



1 did for the emergency medical services.

2           And then finally, the hospital care, we brought in  
3 some specialized training through Dr. Roger Linneman, and  
4 provided some training to the emergency room personnel on  
5 handling contaminated radiation type casualties.

6           Q     Doctor --

7           A     Roger Linneman.

8           Q     And is he a consultant for the company?

9           A     He is now on a retainer full time. He was  
10 contracted to come in to provide that training to the  
11 hospital.

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1 Q From what hospital?

2 A For the Ricnland Memorial Hospital.

3 Q Now, the firemen, for instance, have they been  
4 trained in protective measures to protect themselves,  
5 respiratory measures?

6 A That is correct. That was part of the training  
7 that they went into when onsite.

8 Q Potassium iodine?

9 A No.

10 Q Decontamination?

11 A Went into that, yes.

12 Q Which would be surface decontamination; taking a  
13 shower, throwing your clothes away, that type of thing?

14 A Yes.

15 Q What I'm wondering, Mr. Beale, is if the volunteer  
16 fire people have an understanding of what they are walking  
17 into; if they understand that there are certain types of  
18 exposures, certain types of radionuclides they can be  
19 exposed to that they cannot wash off.

20 A Well, I think in the training that we provided to  
21 them we explained in detail such things as terminology,  
22 contamination, decontamination, respiratory protection; what  
23 could be expected if we had a fire and the control and who  
24 is in charge, that type of philosophy. And so that was  
25 provided to them and they had an equal opportunity to ask

1 questions, any concerns that they have.

2 Q Do they individually have knowledge of what levels  
3 of exposure they would be restricted to getting?

4 A Not to my knowledge.

5 Q What type of radiological instrumentation would  
6 they utilize?

7 A Well, anytime we have people coming on the station  
8 property they will be issued personnel monitoring devices  
9 such as the thermal luminescent dosimeter, a pocket direct  
10 reading dosimeter, and then of course, there will be  
11 available means of direct radiation monitoring equipment  
12 such as a hand-held survey meter. So that of equipment is  
13 available.

14 Q But for an emergency team such as a volunteer fire  
15 department, would have some mechanism immediately present to  
16 give them realtime readings of exposures?

17 A That is correct.

18 Q And who is to determine at what levels they are to  
19 fall back?

20 A When they come in the station they fall under the  
21 program of the station health physics program.

22 Q Co -- .

23 A They would follow the administrative guidelines  
24 that are laid out in the health physics program for the  
25 station.

1 Q And so the station health physicist would be  
2 responsible for insuring that none of the volunteer  
3 assistants receive over a given dosage.

4 A That is correct.

5 Q And what is that given dosage?

6 A Well, there are certain administrative guidelines  
7 that we have in the station such as for a quarterly exposure  
8 of 1250 millirem per quarter whole body dose. There are  
9 times that we have implied in our emergency plan certain  
10 radiation exposures above the 1250 and 3 rem, which is the  
11 maximum you can receive in a quarter for such things as life  
12 saving-type, 25 rem and all the way up to 100 rem. But that  
13 is not indicated for volunteer fire companies. That would  
14 be primarily for company employees on a volunteer type basis.

15 Q And would your health physicist make that  
16 decision, when that recommended level should be passed by  
17 someone?

18 A No. You are saying exceed certain values of 3 rem?

19 Q Yes, sir.

20 A That would come under the control of the plant  
21 manager or station manager. The health physics supervisor  
22 would request to him for above the limit allowable, as far  
23 as the regulations go.

24 Q And DHEC would not have anything to do with that  
25 decision?

1 A No, sir.

2 Q On page 11 we are discussing brochure distribu-  
3 tion. We mentioned that earlier today. I would like to  
4 just touch on that briefly again and find out if you feel  
5 that the mail distribution is going to be adequate.

6 A Yes, I do.

7 Q And do you feel that it is the company's responsi-  
8 bility merely to insure service or to try and assure compre-  
9 hension.

10 A I think it is really both.

11 Q But you feel that you can assure comprehension by  
12 bulk mail?

13 A No, I am saying that from the standpoint of  
14 comprehension, we have already indicated that we plan on  
15 doing a survey or statistical survey of the populace around  
16 the station out to 10 miles to verify they understand the  
17 instructions of what we have mailed to them.

18 Q I have, I think, some very common sense concerns  
19 that there are many people in this ten-mile zone that might  
20 not be able read and comprehend something they get in the  
21 mail. There might be even people that do not get mail, and  
22 there may be people who cannot read, there may be people who  
23 cannot see; there may be people who cannot hear an emergency  
24 siren. There may be people who do not have electricity or a  
25 radio. There are so many variables, and we are dealing with

1 a potential life and death situation.

2           But I believe when we had the county and the state  
3 officials on I think if you were in the room some of that  
4 time you heard many of them agree that door-to-door work  
5 would be advisable. Would you agree that door-to-door work  
6 in this ten-mile zone would be advisable?

7           A     I feel that the company or I would pursue that if  
8 through the survey that we have not even initiated yet, if  
9 it came about from that survey that there was a large  
10 degree, percentage-wise, of people having a problem under-  
11 standing what their roles and responsibilities are for the  
12 general public, then I think we would pursue something such  
13 as you suggested.

14          Q     And let's assume for a moment that a well-done  
15 survey indicated a low level of comprehension; would then  
16 the company be the entity that would pursue perhaps a door-  
17 to-door survey, or would you suggest that that would be  
18 somebody else's responsibility?

19          A     I would say probably it would be the  
20 responsibility of both the local and SCE&G, and maybe I  
21 should phrase that a little bit differently. What I am  
22 saying is that the utility has an equal responsibility of  
23 educating those particular people in the ten-mile EPZ. We  
24 would try every effort to assist with the locals to try to  
25 ensure that that comes about.

1 Q That statistical survey, is that designed yet?

2 A No, it is not.

3 Q Can you give me some of your perspective as to  
4 what a comprehensive statistical survey would consist of?

5 A Well, I think that's something of the order of,  
6 naturally, probably our first attack would be some sort of a  
7 random selection of the populace within the ten miles, and  
8 then by direct mail to them with a question and answer type  
9 form available to us. If, naturally, we do not get any  
10 response at all from the public, that would be an indicator  
11 that something is wrong somewhere.

12 But it is intended right now that a direct mail  
13 survey type form would probably initiate it in the beginning.

14 Q Well, you would agree that one of the deficiencies  
15 that may exist could be a result of mail being an inadequate  
16 means of informing the population, and that if the  
17 statistical survey were based on a mailed document or  
18 questionnaire, that the statistical survey might compound or  
19 at least perpetuate the problems that existed that it is  
20 supposed to reveal.

21 A That is a possibility, but I really feel like at  
22 this point in time I have not seen any hard facts to prove  
23 it, even your suggestion that the public has not compre-  
24 hended. And until I see that and it is proven to me, I just  
25 cannot make that assumption that you stated.

1 Q Well, I am willing to be a little bit gratuitous  
2 at this point, which may be unusual, but I am willing to  
3 admit that we are just beginning on this. I know that you  
4 are just beginning, but I can speak from firsthand  
5 experience that people in my neighborhood that are, I would  
6 say, probably are above average economic background and edu-  
7 cational training, evidence, for some reason, really no  
8 understanding or knowledge of the plan.

9 So I feel that if this is going to be in place  
10 prior to licensing of the plant, then we are going to have  
11 to hurry up and do a lot of educational work because there  
12 does seem to be a markedly low awareness of the emergency  
13 plan.

14 A Agreed, and we are planning on doing  
15 that.

16 Q On page 12 you mentioned the distribution of  
17 information in local businesses aimed at meeting the needs  
18 of the transient population. What other means of notifi-  
19 cation of the transient population have you considered?

20 A There are several that we have not only considered  
21 but will put into action. One is that at all of the boat  
22 ramps surrounding Lake Monticello will be placed a sign,  
23 let's say, providing instructions to boaters and other  
24 people on the lake of what actions they should do in case of  
25 siren activation.



1           Also, around the lake there are two areas which we  
2 consider recreational. One is, naturally, the recreational  
3 lake which is at the north end of the Lake Monticello. We  
4 will plan on putting a siren in that area with a speaker  
5 type system, an audible system, where instructions can be  
6 provided to the recreational people.

7           And the other recreational point is at the -- I  
8 think it is called, it is a ballfield and a tennis court  
9 complex, and we plan on doing likewise; having a speaker  
10 system to provide a verbal or audible instruction to those  
11 particular people.

12         Q     That recreational facility you are referring to is  
13 at Lake Monticello?

14         A     Yes. The rec lake up north we call it of the  
15 station.

16         Q     Have you given any thoughts to the question of  
17 Interstate 26 being in the EPZ?

18         A     Yes, we have discussed that with the state highway  
19 patrol and other county law enforcement people, and it is my  
20 understanding that they have procedures or plans to, if  
21 necessary, block the interstate and have alternate routes  
22 for these people to go in a similar manner if they have a  
23 chemical spill or whatever.

24         Q     Has it given you any concern that very close to  
25 the western border of the EPZ is Lake Murray, a very large

1 body of water, that may cause some evacuation or mobility  
2 problems should wind directions be in that direction?  
3 People would have a problem simply with the very large lake  
4 being about 12 miles up from the plant. Have any of your  
5 planning concerns or discussions addressed any possibilities  
6 or problems that might arise from Lake Murray getting in the  
7 way?

8 A No, sir.

9 Q Mr. Beale, on page 13 you addressed the Wilbur  
10 Smith study.

11 MR. KNOTTS: Judge Grossman, I understand the  
12 gentleman from Wilbur Smith is here.

13 CHAIRMAN GROSSMAN: Do you want him to join the --  
14 .

15 MR. BURSEY: This may be the appropriate time. I  
16 would not mind at all.

17 CHAIRMAN GROSSMAN: Sir, would you remain standing.

18 JOHN C. COSBY

19 was called as a witness by the intervenor and, after being  
20 first duly sworn, was examined and testified as follows:

21 CHAIRMAN GROSSMAN: Please be seated, sir. State  
22 your full name.

23 WITNESS COSBY: My name is John C. Cosby.

24 BY MR. BURSEY (Resuming):

25 Q I will frame a question and whoever feels most

1 prepared to respond, please do so.

2 MR. KNOTTS: Should there be some preliminary  
3 questions?

4 CHAIRMAN GROSSMAN: Yes, I think we ought to  
5 establish who he is and who he represents.

6 BY MR. BURSEY (Resuming):

7 Q Mr. Cosby, you are employed by Wilbur Smith and  
8 Associates?

9 A (WITNESS COSBY) I am.

10 Q Did you participate in the preparation of a time  
11 estimate for evacuation of the ten miles right around the  
12 V.C. Summer plant?

13 A (WITNESS COSBY) I did.

14 Q And were you involved in the actual gathering of  
15 the data?

16 A (WITNESS COSBY) Yes, I was.

17 Q And the interpretation of the data?

18 A (WITNESS COSBY) I was.

19 Q And the extrapolation of time estimates?

20 A (WITNESS COSBY) Yes.

21 Q Can you tell us -- are you aware that the original  
22 time estimates for evacuating this same area by SCE and GE  
23 indicated a maximum time of three hours and 20 minutes?

24 A (WITNESS COSBY) I was not, am not. This is the  
25 first I have heard of it.

1 Q Your study indicates that households with cars  
2 available could be mobilized and begin evacuation within 60  
3 minutes of notification. Is that right?

4 A (WITNESS COSBY) I will have to review my notes,  
5 sir. I think that was approximately the -- .

6 Q If you can rely on Mr. Beale's testimony, it is at  
7 the top of page 13.

8 A (WITNESS COSBY) Yes. Right, that is correct.

9 Q And that the maximum amount of time necessary for  
10 the last car to leave the emergency population zone under  
11 normal conditions would be 81 minutes.

12 A (WITNESS COSBY) That is correct.

13 CHAIRMAN GROSSMAN: Rather than rely on Mr.  
14 Beale's testimony, I think you ought to assure yourself that  
15 the statements are accurate and rely upon your own.

16 WITNESS COSBY: That is correct according to my  
17 report, sir, on page 40 of my report.

18 BY MR. BURSEY (Resuming):

19 Q And can you tell us, Mr. Cosby, how you did your  
20 study? Just the mechanics involved in determining that 81  
21 minutes.

22 A (WITNESS COSBY) Well, it followed a rather  
23 standard procedure that we have employed in a number of such  
24 similar studies. That is, we attempted to identify the  
25 emergency planning zone itself, which is conventionally

1 called the 10-mile zone around a nuclear zone, determined  
2 the socio-economic conditions of the people resident in that  
3 area, tried to determine the natural boundaries that might  
4 divide that population into some kind of well-understood,  
5 well-accepted terms of zones. We then sub-divided the  
6 population resident in the EPZ within those evacuation  
7 zones. And they were roughly compatible with the zero to  
8 two mile, two to five mile and five to ten mile annular  
9 rings around the site.

10           We then resorted to various statistical data  
11 including the US Census studies by the local planning  
12 agencies and others to identify the number of people within  
13 each of those zones, the number of households that own cars,  
14 their approximate population, the statistical average of  
15 population per household, of households that owned one or  
16 more cars. We determined the population and the households  
17 and the approximate average number of people in the house-  
18 holds without cars.

19           We then referred to the available highway  
20 facilities related to each of those zones. We established  
21 an evacuation network, so to speak, of these roads that  
22 would lead the population radially away from the site as  
23 well as possible. We related this network to the households  
24 that owned cars and those that did own cars by various sub-  
25 planning zones called centroids, which further sub-divided

1 each evacuation zone into traffic planning zones.

2           We then applied these data to a computer model  
3 which we have been using, which we have used in a number of  
4 other studies including nine that we did for the Federal  
5 Emergency Management Agency last June 1980, which included  
6 such areas as Three Mile Island, Enrico, Fermi, Midland,  
7 Milstone, Shoreham, Beaver Valley, Limerick, Midland. And I  
8 do not know whether I have counted all of them, but also,  
9 San Onofre in California. This model has been proven and  
10 accepted by this and has been published nationwide. The  
11 results have been published nationwide.

12           We used this model which related this network of  
13 roads and its capacity and its approximate operating speed  
14 to the volumes that would be assigned to each of the  
15 centroids. We used a public response time distribution  
16 which is a statistical measure of the time that people are  
17 going to respond to the warning, prepare to leave their home  
18 and actually leave their home and enter this network.

19           This model, then, produced the times of travel  
20 from various centroids to the external node which marked the  
21 boundary of the 10-mile EPZ. And it was on that basis that  
22 this figure of 81 minutes was calculated under the normal  
23 conditions, as quoted here.

24           Q       And that 81 minutes is for people with their own  
25 cars and with weather conditions. That is your best case?

1           A       (WITNESS COSBY) That is correct, yes. It is not  
2 necessarily the best case; it is the worst case.

3           Q       It is the last car in the most favorable  
4 conditions of the class of people that have their own  
5 vehicles.

6           A       (WITNESS COSBY) It is the last car, right.

7           Q       Right. Now, on this statistical average, where  
8 did you get your statistics for Fairfield County?

9           A       (WITNESS COSBY) What statistics are you referring  
10 to? We have several.

11          Q       For, you said that you had, I would assume,  
12 statistical averages for X number of people in a household,  
13 X number of households having their own vehicles.

14          A       (WITNESS COSBY) Right, we got that basically from  
15 the Bureau of The Census Data by census track.

16          Q       Specifically for census tracks within Fairfield  
17 County?

18          A       (WITNESS COSBY) Right. They were then compared  
19 with other statistical data. The Census data that we  
20 actually initially used was 1970 data, because that is the  
21 most recent Census published data. Since that time there  
22 has been growth and changes within the county. We used  
23 these growth figures and changes as projected by the  
24 Midland's Regional Planning Council to project the 1980  
25 conditions.

1 Q The statistics that you referred to did, indeed,  
2 contain a number of households with their own vehicles, or  
3 did you have to extrapolate that?

4 A (WITNESS COSBY) No, that is specific in the data.

5 Q And can you tell me what percentage of the homes  
6 that you were dealing with in Fairfield County were actually  
7 without vehicles?

8 A (WITNESS COSBY) It varied according to what  
9 census track and what area you are talking about. But  
10 approximately, in the total county, approximately 20% or  
11 thereabouts were without cars. I will have to look that up.

12 (Pause.)

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1           Let's see, that is contained in Table 2 of my  
2 report. I have it. Was your question the number of house-  
3 holds without cars?

4           Q     Yes.

5           A     (WITNESS COSBY) I do not have that expressed in a  
6 percentage in an easily determined way, but as I recall, it  
7 was about 20 to 25%. It was a fairly good number.

8           Q     Yes, sir. And then your study recommended busing,  
9 I believe, to deal with the disadvantaged.

10          A     (WITNESS COSBY) That is correct.

11          Q     The term disadvantaged is separate and distinct  
12 from handicapped, is that correct?

13          A     (WITNESS COSBY) The term transportation of  
14 disadvantaged is a term that is normally applied to those  
15 persons without private vehicles at their disposal. That  
16 does not include the handicapped.

17          Q     Can you tell me about your plan as it regards  
18 buses for the transportation of disadvantaged? Where the  
19 buses come from?

20          A     (WITNESS COSBY) The plan required buses from both  
21 -- well, from all counties. In other words, Newberry County  
22 would supply buses and follow those routes as indicated in  
23 my plan for Newberry County. Lexington County would do the  
24 same. Richland County which has a small number would do the  
25 same, and Fairfield County would supply buses originally

1 coming from the city of Winsboro.

2 Q Are these schoolbuses?

3 A (WITNESS COSBY) I was not specific as to that.  
4 It was assumed, and we did check to see, that there were  
5 sufficient schoolbuses available for this purpose. But we  
6 did not specifically relate it, necessarily to schoolbuses.

7 Q So if I understand, then, the mechanism was that  
8 you spoke with county officials in various counties and told  
9 them that you would need, say, 8 schoolbuses for Zone E-2,  
10 and they said no problem.

11 A (WITNESS COSBY) That is correct.

12 Q But you do not know where the buses are coming  
13 from or who delegates them?

14 A (WITNESS COSBY) I did not specifically -- it was  
15 not my responsibility to go further than that. I was  
16 looking at the feasibility of such a plan. And when I  
17 identified that it was feasible for buses to supply that  
18 service, I went no further.

19 Q Mr. Beale, can you shed any light on where the  
20 buses come from? After listening to the Public Service  
21 Commission and the Department of Education and the county  
22 people I am a bit confused as to exactly who has say-so over  
23 the eight buses we are going to need to carry the approxi-  
24 mately 432 people without automobiles out of Zone E-2.

25 A (WITNESS BEALE) If my understanding is correct

1 the counties are aware of the schoolbus numbers and the  
2 number of buses that, say, will be required to handle an  
3 evacuation, and that came about through the evacuation time  
4 assessment study discussed with Mr. Cosby. It is my under-  
5 standing that where the Public Service Commission comes in  
6 is if an emergency were to take place and the counties need  
7 additional buses, they would request to the state through  
8 the Emergency Preparedness Division, and the Emergency  
9 Preparedness Division would then acquire the buses through  
10 the Public Service Commission.

11           So I think that the counties -- my understanding  
12 is that the counties have the buses. If they need  
13 additional buses they could go through the state emergency  
14 preparedness division and either request buses to the  
15 schools or other means of transportation available to the  
16 state.

17       Q     But the county office of emergency preparedness  
18 would be the one that would finger the 8 buses initially?

19       A     (WITNESS BEALE) That is my understanding.

20       Q     Right. And Mr. Crosby -- is it Crosby?

21       A     (WITNESS COSBY) Cosby.

22       Q     So coming back from the point where we have the 8  
23 buses to who drives them, did your time estimates -- did you  
24 get the buses with drivers that know where they are going,  
25 or who is driving these buses?

1           A       (WITNESS COSBY) The buses would be driven, if the  
2 county supplied them, by the normal drivers of those  
3 schoolbuses. I went to the extent of verifying that they  
4 would be available, and be subject to call either at home or  
5 at their school, since most of these are students, high  
6 school students, who drive the buses. They also, by and  
7 large, drive those buses home and have them available at  
8 home during the non-school hours.

9           Q       Well, skipping over the fact that several of the  
10 county emergency preparedness people said they have problems  
11 with the students driving buses in evacuation situations,  
12 would the routes that the buses take for the disadvantaged  
13 be the same as the schoolbus routes?

14          A       (WITNESS COSBY) Not necessarily, no.

15          Q       We have some assurance that whoever the drivers  
16 turn out to be, they are going to go exactly where the  
17 routes are.

18          A       (WITNESS COSBY) I presume that since most of  
19 these drivers would be residents of the counties in which  
20 they would operate, and since the road network is very, very  
21 simple and straightforward, that there would be no point of  
22 confusion in their being able to comprehend a rather  
23 specific instruction to follow a route.

24          Q       And the mechanism for notifying the transportation  
25 disadvantaged as to where to meet the bus, can you speak to

1 that, sir?

2           A       (WITNESS COSBY) In our survey of the location of  
3 these residences, we found that most of the people resided  
4 within an estimated one-half mile maximum of a highway  
5 facility. The bus routes follow those facilities, and  
6 therefore, the transportation disadvantaged would be  
7 expected to be within half a mile of the highway. They  
8 would be instructed to go to that highway, go to their  
9 mailbox location in general and wait for the bus to pick  
10 them up.

11          Q       And how would this notification be accomplished?

12          A       (WITNESS COSBY) It would be accomplished by the  
13 combination of the warning system, the sirens which alert  
14 the population to listen to the radio, and would then be  
15 informed as to what they should do in performing the  
16 evacuation.

17          Q       Might we see this in the next emergency brochure,  
18 Mr. Beale?

19          A       (WITNESS BEALE) I think something to that effect  
20 would probably go into -- we have already discussed that  
21 with several of the local officials of the counties that had  
22 that particular question. So it is my understanding that we  
23 anticipate something of that instruction would be provided  
24 in the next revision to the brochure.

25          Q       Mr. Cosby, all of your assumptions about the

1 utilization of schoolbuses rely on none of these buses  
2 coming from schools where they are needed to move children,  
3 is that right? These are additional buses?

4 A (WITNESS COSBY) That is correct. These were  
5 surplus buses that would be used to make this movement.

6 Q Now, there are four schools located in the 10-mile  
7 zone, is that correct?

8 A (WITNESS COSBY) Yes. In or near, yes.

9 Q I think you can refer to page 28 of your book.

10 MR. LINENBERGER: Mr. Bursey, you just received an  
11 answer from Mr. Cosby that carries an implication I do not  
12 understand. I would like to try to clarify this.

13 Sir, when you spoke of surplus buses, I do not  
14 understand that term because in my mind, that means buses  
15 parked somewhere that are not needed so there would not be  
16 drivers assigned, and that sounds confusing.

17 WITNESS COSBY: I am sorry. That is an admissible  
18 criticism. What I meant was surplus in the fact that they  
19 were not needed to move school children, evacuate school  
20 children, out of the endangered zone. These were in excess  
21 of that requirement to move the school children out of their  
22 zones.

23 MR. LINENBERGER: Well, all right. Let me go to  
24 the next problem that raises, then. It seems to me whether  
25 or not they are surplus depends on a number of considera-

1 tions such as time of day, for example, doesn't it?

2           WITNESS COSBY: Well, for instance -- if I may  
3 give you a specific instance -- Carolina High School is a  
4 high school that is just outside of the evacuation zone, the  
5 EPZ. About half, according to my information, of the  
6 students that live in the endangered zone go to that --  
7 about half of the students that go to that school live in  
8 the endangered zone that could possibly be required to be  
9 moved to their homes within that zone, so they might be  
10 evacuated with their families.

11           The other half would be expected to stay at that  
12 school because they would not be in the endangered zone.  
13 Therefore, the buses that would be normally used to move  
14 those students during school hours would be available to  
15 evacuate portions of that county, in the endangered zone,  
16 should it be in that county.

17           MR. LINENBERGER: I see.

18           WITNESS COSBY: Similar situations occur in the  
19 town of Newberry and in the town of Winsboro.

20           MR. LINENBERGER: Fine. Excuse me, Mr. Bursey.

21           MR. BURSEY: Thank you, sir.

22           BY MR. BURSEY (Resuming):

23           Q     I have a bit of a problem that I hope you  
24 understand is compounded by the fact that my daughter goes  
25 to this school. It is one that is left out of the list and

1 it is the Chapin Elementary School, which is right on the  
2 edge of the 10-mile zone. I notice that there were several  
3 schools included in your list of schools that were not in  
4 the 10-mile zone but that the Chapin Elementary School was  
5 not mentioned except -- well, on page 31 we have a total of  
6 1090 students in the Chapin High School and Elementary  
7 School, and you determined a total of 670 students therefore  
8 should be carried to the reception center. I am not sure  
9 how you came to this 670 students figure.

10 A (WITNESS COSBY) That was the information that I  
11 had received. Now, let me answer. You asked two  
12 questions. First, why did I leave out Chapin Elementary  
13 School. I think that was your first question.

14 Q Yes, sir.

15 A (WITNESS COSBY) At least it was implied in your  
16 question.

17 Q I think I know. That is why it was implied, but  
18 if you want to respond, go ahead.

19 CHAIRMAN GROSSMAN: Why don't you answer the  
20 question.

21 WITNESS COSBY: According to our information from  
22 the school board, the Chapin Elementary School is outside of  
23 the EPZ. Secondly, school students going to Chapin  
24 Elementary School are provided transportation by the same  
25 buses that serve Mid-Carolina High School, and those buses



1 are at Mid-Carolina High School during the normal  
2 schoolday. So we did not see the need to include Chapin  
3 Elementary School in our report, but we did think  
4 Mid-Carolina was important since that was a location of  
5 possible schoolbuses to be used.

6 Now, the second part of your question was how did  
7 I determine these figures, if I recall.

8 BY MR. BURSEY (Resuming):

9 Q Yes, sir.

10 A (WITNESS COSBY) These figures came from an  
11 estimate provided to us by the school board based on school  
12 children picked up by schoolbus routes in the various zones  
13 within the county. And this was the best estimate we could  
14 come by and there may be less than that figure, but  
15 certainly, probably not more, since it may include students  
16 that live outside the zone but were picked up by routes  
17 serving that area.

18 In other words, there may be more students than  
19 that number but probably not less than that.

20 Q Yes, sir. Your study is the only one, the only  
21 place that I have seen mention of a partial evacuation of  
22 any of the schools where the evacuating students would be  
23 determined by their homes being in an evacuation zone, even  
24 though the school itself is in the 10-mile EPZ.

25 A (WITNESS COSBY) This follows the assumption that

1 parents have a very, very strong resistance in most natural  
2 disaster situations such as hurricanes, floods and other  
3 things that we have studied extensively -- we do not have  
4 any information about a nuclear or radiological emergency  
5 because we have never had one, an evacuation of any scale  
6 due to a radiological emergency. But we have had evacuation  
7 due to natural disasters, and these people resist evacuating  
8 their homes unless they are evacuated as a group.

9           In other words, they do not wish to split their  
10 families and the locations of their families in such an  
11 emergency. They do not want their children going to one  
12 shelter and maybe assigned to another shelter and the  
13 husband being at work, for instance. They like to evacuate  
14 as a total group.

15           This is what we call in our evacuation planning  
16 procedure public response time distribution; the time it  
17 takes people to assemble at home and evacuate from the home  
18 as a group. This is what was included here. It includes  
19 getting the children back at home so that they may evacuate  
20 as a family group.

21           Q     I am sorry, I thought your study said that the  
22 option of returning the students to their home was a second  
23 choice, a less favorable choice.

24           A     (WITNESS COSBY) No.

25           Q     Due to the fact that it took so long. On page 29,

1 distribution of students to their homes --.

2 A (WITNESS COSBY) Let me see that.

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1           A       (WITNESS COSBY) We left it as an option because  
2 there was some expression by the planners that we talked to  
3 that this would not be the case in this locality.

4                   (Pause.)

5           I'm sorry, I am wrong. In our other studies we  
6 have done this; we have actually evacuated children back to  
7 their homes so they might be within the tenets of what we  
8 just concluded.

9           CHAIRMAN GROSSMAN: We will take a ten-minute  
10 break now.

11                   (A short recess was taken.)

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1           CHAIRMAN GROSSMAN: Were you in the middle of an  
2 answer, sir, with regard to page 29, or was there another  
3 question coming, Mr. Bursey?

4           MR. GOLDBERG: Judge, if I might before we resume,  
5 could I get some idea, for primarily the benefit of my  
6 witnesses, what the hearing plans are for the balance of the  
7 day? Will we have an evening session or will we continue to  
8 some designated hour?

9           CHAIRMAN GROSSMAN: We are thinking of going on  
10 into the evening today, yes. But whether we were going to  
11 break for dinner or just continue, we had not decided yet.  
12 If you want to express a preference now you can, but we were  
13 just waiting to see how we felt towards the end of the day.

14          MR. BURSEY: Judge Grossman, it might be  
15 advantageous for me to let you know I have correspondence  
16 with Dr. Caldicott which led me to believe she will not be  
17 available so that opens up Friday.

18          MR. KNOTTS: She will not be coming to testify in  
19 the proceeding at all? Is that what I understand?

20          MR. BURSEY: Unless the proceeding goes over into  
21 another week. If the proceeding is ready to terminate on  
22 Friday or Saturday and she is not here, I'm going to have to  
23 just rely on trying to get portions of her testimony into  
24 the record that have been filed.

25          CHAIRMAN GROSSMAN: Mr. Goldberg?

1           MR. GOLDBERG: My witnesses, although not  
2 necessarily counsel, express a preference to proceed, I  
3 guess, as late as the Board and the parties desire and then  
4 have dinner and reconvene again in the morning.

5           CHAIRMAN GROSSMAN: You mean rather than break for  
6 dinner and come back?

7           MR. GOLDBERG: Correct.

8           CHAIRMAN GROSSMAN: That sounds fine now. If  
9 later, people feel differently, they can say so. We have no  
10 objection to that as a tentative plan.

11          MR. GOLDBERG: Fine.

12          CHAIRMAN GROSSMAN: Mr. Bursey, you may proceed.  
13 But by the way, we do not intend to cut it short today just  
14 because we have that slot opening up on Friday. So we would  
15 just like to get as much as we can in now.

16          MR. BURSEY: Yes, sir.

17          BY MR. BURSEY (Resuming):

18          Q     Mr. Cosby, if I could summarize our last point,  
19 your study states that it is more time-efficient to evacuate  
20 students directly from the schools to the relocation  
21 centers. Is that correct?

22          A     (WITNESS COSBY) Yes.

23          Q     And your study also speaks to the partial  
24 evacuation of some of the schools, is that correct?

25          A     (WITNESS COSBY) That is correct.

1 Q And that partial evacuation would be determined by  
2 whether the students' residences were within the EPZ or not.

3 A (WITNESS COSBY) That is correct. Within the  
4 zones being evacuation -- evacuation zones being evacuated.

5 Q And in the case of the Chapin High School, the  
6 Chapin High School is itself in the EPZ?

7 A (WITNESS COSBY) Right.

8 Q And so we might have an instance of a partial  
9 evacuation of the Chapin High School, the utilization of  
10 buses to do so, a change in wind direction, a necessity to  
11 evacuate the rest of the high school. Did study takes that  
12 into account?

13 A (WITNESS COSBY) Just a minute, I will have to  
14 refresh my memory. It has been a lot of time since I did  
15 this. I have done about four since then, so I have to make  
16 sure.

17 (Pause.)

18 DR. HOOPER: Mr. Bursey, I am not exactly sure  
19 what your question was, what your hypothetical was. Would  
20 you go over that again, please; what situation you are  
21 formulating?

22 MR. BURSEY: Yes, sir. The study that we are  
23 going over now, the Wilbur Smith and Associates study,  
24 speaks to the partial evacuation of the schools based on  
25 students' residences, where their homes are. For instance,

1 the Chapin High School has 650 students. This study postu-  
2 lates the evacuation of students based on their residence,  
3 and gives an instance of 230 students of the total student  
4 body of 650 residing in Zone D-2. And this study is based  
5 on a partial evacuation of students.

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1 BY MR. BURSEY: (Resuming)

2 Q Is that right?

3 A (WITNESS COSBY) If I could read my quote here on  
4 page 31, I say "Approximately 230 students of the total  
5 student body of about 650 reside in evacuation zone D-2."

6 School buses serving these students also carry 440  
7 elementary school children to a school outside D-2. A total  
8 of 670 students, therefore, should be carried to the  
9 Lexington County reception center in Irmo, South Carolina.

10 Is that an answer to your question?

11 Q And the remaining 400 plus students would be  
12 carried somewhere else, is that right, Mr. Cosby. I am not  
13 sure I understand what the inference is as to what happens  
14 to the rest of the students.

15 A (WITNESS COSBY) That is correct.

16 CHAIRMAN GROSSMAN: Excuse me. I think we are  
17 using -- perhaps I misunderstood your figures, but I was  
18 wondering how you used 1,050 sometime before. Is that the  
19 total number?

20 MR. BURSEY: That is the total enrollment in the  
21 Chapin elementary and the Chapin high school, and they share  
22 buses. Mr. Cosby's figures in here say a total of 670  
23 students should be carried to the Lexington County reception  
24 center. Now, that leaves approximately 400 students that  
25 the study does not deal with, and I am asking him what

1 happens to those students.

2 CHAIRMAN GROSSMAN: And how have those 400 been  
3 identified? Which ones are those?

4 MR. BURSEY: Well, sir, these apparently are the  
5 students that reside not in zone D-2. That means they could  
6 reside in any of the other emergency zones or even outside  
7 of it, but the study does not specify whether the remaining  
8 400 students actually have residences within the zone. I  
9 know some of them do.

10 But there are 400 students left in the school.  
11 The buses have gone, and I am worried about those 400  
12 students.

13 CHAIRMAN GROSSMAN: I am worried about the record.

14 (Laughter.)

15 Are we satisfied that we have identified what the  
16 1,050 are, the 650, the 400 and the 250, because I am not  
17 satisfied that I understand what all those numbers mean.

18 Now, Mr. Knotts.

19 MR. KNOTTS: Judge, while we are trying to  
20 clarify, could we establish whether the Mid-Carolina, I  
21 think it was referred to, school is the same as the Chapin  
22 high school.

23 WITNESS COSBY: It is not the same.

24 MR. KNOTTS: All right.

25 WITNESS COSBY: I will answer the question, but I

1 fail to see the importance of that insofar as evacuation  
2 plans are concerned.

3           If I may point out that 400 students can be  
4 carried in ten buses. Ten buses is hardly a significant  
5 load on highway facility in this area, and I do not  
6 comprehend why we are going into such minute detail on these  
7 figures. But if you wish, we will carry it forward. But  
8 ten buses is certainly not going to break the back of any  
9 transportation facility in the area.

10           BY MR. BURSEY: (Resuming)

11       Q     Well, sir, I do wish -- I mean we have already  
12 allocated a lot of buses out in other areas. We have got  
13 buses carrying the transportation disadvantage. We have  
14 buses at other schools, and there are only -- I assume there  
15 are indeed a finite number of buses available given the time  
16 constraints that evacuation needs to proceed on. And I  
17 wanted to get to the specifics of your plan in terms of its  
18 comprehensiveness of evacuation.

19           It appears to me that the evacuation plan for the  
20 schools as it is stated now does indeed leave some students  
21 there, and if it is your testimony that your study concluded  
22 that it would be all right, then we will leave it at that  
23 and go on to another question.

24       A     (WITNESS COSBY) I am trying to suggest that in  
25 our investigation we did not rely on totally the number of

1 buses that were available at Mid-Carolina or at Chapin high  
2 school. There are a significant number of buses outside of  
3 the EPZ, both in Newberry and parts of Lexington County,  
4 that are not within the EPZ in Winnsboro and Richland  
5 County, that could be called upon for this evacuation  
6 service.

7           And all I am suggesting is we are going into  
8 something that perhaps is important to you, but I do not as  
9 a transportation expert feel that it is important to the  
10 evacuation itself.

11           Now, I will go on with it, but that is just an  
12 observation I wish to put into the record.

13       Q     Well, I believe your observation is noted, sir,  
14 and if you could tell me if your study simply did not deal  
15 with the disposition of the remaining 400 students, we will  
16 move on.

17       A     (WITNESS COSBY) We did not plan to evacuate  
18 Mid-Carolina high school totally. We would evacuate Chapin  
19 high school totally I think because it is within the EPZ.  
20 Should D-2 be a designated endangered area, you would have  
21 to obviously evacuate Chapin high school.

22       Q     Well, I would concur with you that the evacuation  
23 of schools within the EPZ, the evacuation, should that  
24 extreme measure be called for, that it would be prudent to  
25 evacuate the entire student body. But I believe your study

1 reflects and the time estimates that your study postulates  
2 is not based on total evacuation of the schools, is that  
3 correct?

4       A       (WITNESS COSBY) The time to evacuate Chapin high  
5 school would not be a limiting factor and would not exceed  
6 the 81 minutes that we previously testified for the last car  
7 to get out of the zone.

8       Q       In spite of the fact that there are only available  
9 buses to carry half the student body of Chapin elementary  
10 and Chapin high school?

11       A       I do not think it is indicated that that is the  
12 circumstance.

13       Q       Sir, the bottom of page 31 says there are 13 buses  
14 at Chapin high school, there are no buses at Chapin  
15 elementary school, and there is a total of over 1,000  
16 students. And the 13 buses cannot carry them all, and so I  
17 will not belabor the point, but it appears to me that your  
18 time estimate has been based on a partial evacuation of the  
19 schools and that -- I would infer from that that it would  
20 take additional time to remove the remaining students.

21       A       (WITNESS COSBY) I am somewhat confused also about  
22 your figure of a thousand students. I do not know what  
23 thousand you are talking about.

24               MR. LINENBERGER: Well, part of the problem here  
25 is that your text discusses Chapin high school, and Mr.

1 Bursey is discussing the combination of Chapin high school  
2 and Chapin elementary school, I believe. And it is the  
3 addition of the student body of both of those schools that  
4 brings the total up to the 1,000 and something.

5 Is that not correct, Mr. Bursey?

6 MR. BURSEY: Yes, sir. And all the numbers I am  
7 working with are contained in the paragraph that is  
8 headlined "Chapin high school."

9 MR. LINENBERGER: Except that that paragraph does  
10 not include the number of students that go to the other  
11 school that you are including, the elementary or junior high  
12 or whichever it is.

13 MR. BURSEY: Well, we must be looking at different  
14 copies. Mine says, "School buses serving the students also  
15 carry 440 elementary school children to a school outside  
16 D-2," which is the Chapin elementary school. And so you add  
17 440 and 650 and you get 1,090; and those are the students  
18 that these buses serve --

19 WITNESS COSBY: But the 440 elementary school  
20 children go to Chapin elementary school which is outside of  
21 the EPZ, and they would not be evacuated.

22 BY MR. BURSEY: (Resuming)

23 Q All right, sir. Then where did the 670 figure  
24 come from if that is not adding the 440 and the 230  
25 together? What is the only way I can extrapolate 670 out of

1 all of your figures.

2       A       (WITNESS COSBY) That is possibly an error. But  
3 the 230 students residing in the evacuation zone D-2 are  
4 included in the 650, the total student body at Chapin high  
5 school. Now, the buses that are available at that school  
6 also carry 440 elementary school children who are going to  
7 school outside of D-2, so that those buses would not be  
8 needed to take those 440 students out of the EPZ.

9               So consequently, if I may correct it, 650 students  
10 would have to be evacuated to the Lexington-Irmo County  
11 reception center.

12       Q       When you drew your plan up --

13               CHAIRMAN GROSSMAN: Are you moving off this point  
14 now?

15               MR. BURSEY: No. Just coming in from a new angle,  
16 Judge.

17               CHAIRMAN GROSSMAN: Okay.

18               BY MR. BURSEY: (Resuming)

19       Q       When you drew your plan up, who told you not to  
20 include or to include the Chapin elementary school? I mean  
21 where did you get your guidance as to what the inclusions  
22 and exclusions of institutions, schools, and hospitals on  
23 the periphery of this ten-mile zone would be?

24       A       (WITNESS COSBY) Well, I think it is practice,  
25 standard practice in the procedures for planning evacuations

1 of the plume exposure path around the evacuation planning  
2 zone to only go out to the ten-mile limit, and that is the  
3 area that we worked on.

4           We identified the residences of these children who  
5 had to be evacuated at the schools that were outside of that  
6 zone, initially because we were planning to take them home.  
7 But later on we revised that and took them to a shelter on  
8 the basis that most of the local people felt that the  
9 residents in that area would not object to their children  
10 going to a shelter, as I now recall.

11           The direction is a very straightforward one. If  
12 the school is outside of the EPZ, it is not exposed to a  
13 radiation hazard according to standard practice of the NRC  
14 and FEMA. That is why we did not include the Chapin  
15 elementary school. If they are there, they are not in  
16 danger.

17       Q     Is this what you were advised by South Carolina  
18 Electric and Gas?

19       A     (WITNESS COSBY) No, no. I was following standard  
20 procedures of -- the procedures -- what is it, NUREG-0654.

21       Q     0654.

22       A     (WITNESS COSBY) Yes.

23       Q     And you inferred that regulation to be ten miles  
24 firm and fast?

25       A     (WITNESS COSBY) Approximately ten miles, yes.



1 Q Now, is the Chapin elementary school, it is about  
2 a mile outside of that, approximately.

3 A (WITNESS COSBY) I say approximately because our  
4 evacuation zones in certain cases go outside of the ten mile  
5 radius.

6 Q And what instances were those, Mr. Cosby?

7 A (WITNESS COSBY) They followed boundaries such as  
8 roads, streams, and other physical features that could be  
9 easily identified to the local populace. But if it is 11  
10 miles, if Chapin elementary school is 11 miles from the  
11 site, then I cannot see any reason why I should be  
12 instructed other than to follow the standard procedures and  
13 guidelines of NRC and FEMA that people located beyond 10  
14 miles are not considered to be in danger of radiation  
15 exposure.

16 I applied that logic in deciding that Chapin  
17 elementary school would not be included.

18 CHAIRMAN GROSSMAN: I think what the witness is  
19 saying is not that he followed the ten miles but that he  
20 followed the EPZ, and it happened to be ten miles at that  
21 point, without taking into account -- and did not take into  
22 account Chapin elementary school.

23 Is that correct, sir?

24 WITNESS COSBY: Yes, sir. That is correct. But  
25 Chapin elementary is well beyond the ten miles regardless of

1 whether it is within an EPZ or not. I think Mr. Bursey  
2 admitted it to being one mile beyond the ten-mile limit.

3 CHAIRMAN GROSSMAN: But it is outside the EPZ.

4 WITNESS COSBY: It is outside also the EPZ as  
5 designated by the boundaries of our map here.

6 MR. BURSEY: We will just leave this that we have  
7 a difference of opinion as to the interpretation of that  
8 specific regulation as to the inclusion of hospitals and  
9 schools on the boundary of the ten mile guide.

10 CHAIRMAN GROSSMAN: One question just to follow up  
11 here. After the children within the EPZ are evacuated, I  
12 take it there are no buses left for the Chapin elementary  
13 school children if anyone should determine to evacuate them,  
14 even though they are not in the EPZ. Is that so?

15 WITNESS COSBY: I think I have testified that  
16 there are additional buses available over those that are  
17 indeed discussed schools that could be available to evacuate  
18 other students.

19 CHAIRMAN GROSSMAN: I see. But the buses that  
20 ordinarily service those children would not be there at the  
21 time. They would have moved the other children out.

22 WITNESS COSBY: That is correct, yes.

23 BY MR. BURSEY: (Resuming)

24 Q Mr. Cosby, you will have to forgive me for harping  
25 on those 440 students, because one of those is my daughter.

1           Now, did you in looking at the Loman Home, which  
2 is a senior citizens facility which is an institution of the  
3 sort that I believe I would have made an exception to  
4 include in the ten mile zone, I believe it is probably again  
5 just maybe a mile outside of the ten mile zone.

6           Was there any discussion in your plan as to the  
7 inclusion of the Loman Home?

8           A     (WITNESS COSBY) There is none.

9           Q     Mr. Beale, are you familiar with the Loman Home?

10          A     (WITNESS BEALE) Yes, sir.

11          Q     Do you know how many people there are at the Loman  
12 Home?

13          A     (WITNESS BEALE) No, sir.

14               CHAIRMAN GROSSMAN: Excuse me. I have a question.

15               Mr. Beale, were those two schools that were  
16 outside the EPZ but included in your emergency plans taken  
17 into account, do you know, in the evacuation time assessment?

18               WITNESS BEALE: No, sir, they were not.

19               MR. GOLDBERG: I was just going to -- I think they  
20 were included in the Fairfield County plan, not the station  
21 plans.

22               WITNESS BEALE: I think the question was on the  
23 evaluation time assessment study.

24               CHAIRMAN GROSSMAN: Yes.

25               WITNESS BEALE: And it was not included. That is

1 my understanding of your question.

2           CHAIRMAN GROSSMAN: I am sorry. Mr. Goldberg did  
3 have a further clarification.

4           MR. GOLDBERG: I just thought -- my understanding  
5 was from an official from Fairfield County that they were  
6 included in the Fairfield County plans and not the nuclear  
7 station plans. It is also not clear to me that Mr. Cosby,  
8 you know, did anything more than to develop an evacuation  
9 time estimate for an emergency planning zone that someone  
10 else fixed. So I think that is why some of the questions  
11 that Mr. Bursey is asking, you know, probably do not lie  
12 within his province.

13           MR. BURSEY: I certainly feel that the questions I  
14 am directing to Mr. Cosby in regard to where did he get the  
15 direction, did SCE&G tell me ten miles and stop, and Mr.  
16 Cosby's response was no, I did that on y own understanding,  
17 his own understanding of what an E-P-Z is. And so I think  
18 that was relevant. I mean, if Mr. Cosby was instructed to  
19 go ten miles and stop or to go a reasonable distance and  
20 stop, those are things that contribute to the adequacy of  
21 this time estimate.

22           WITNESS COSBY: May I clarify something here?

23           CHAIRMAN GROSSMAN: Hopefully.

24           WITNESS COSBY: The zones that were used in my  
25 evacuation plan followed those that had been established by

1 the State Emergency Preparedness Agency of the state of  
2 South Carolina. These boundaries were given to me, and I  
3 reviewed them and felt that they did comply with the  
4 requirements of NUREG-0654 in general intent and in general  
5 scope.

6           We did follow those plans to keep it consistent  
7 with the previous invested planning that had been done by  
8 the State Emergency Preparedness Agency in that respect only.

9           Now, Mr. Bursey said, I thought he asked me why  
10 did I not include the Chapin elementary school in this  
11 plan. First of all, it was without -- outside of the EPZ as  
12 identified. But I did not make an exception of it because  
13 further, it was far beyond the ten mile limit to an extent  
14 that I felt it was not necessary to make an exception.

15           Now, I appreciate Mr. Bursey's emotional anxiety,  
16 we might say, because his child is there, but I see no  
17 reason to let that enter into why I did not choose to  
18 include it.

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1           CHAIRMAN GROSSMAN: Mr. Cosby, we were not sure,  
2 and I am still not, whether you made exceptions to the plan  
3 or whether you merely accepted the EPZ, and if you merely  
4 accepted the EPZ, it simplifies matters for us. But you  
5 suggest that maybe you made exceptions, and that is a  
6 complication. Did you just take the EPZ?

7           WITNESS COSBY: Let me go back. I used the  
8 boundaries and the emergency planning sub-zones within that  
9 EPZ that confirm that were in conformity with what the state  
10 emergency planning agency, preparedness agency, had laid out.

11           Now, I subdivided those zones into travel  
12 centroids, but after reviewing it, and Mr. Beale had asked  
13 me to review this geometric relationship of emergency  
14 planning zones to see if I thought that it complied with the  
15 government's regulations, and I did that review, and I felt  
16 that it did comply with those regulations. I made no  
17 exceptions beyond that point.

18           CHAIRMAN GROSSMAN: That is fine. I think that  
19 will resolve a number of questions that we had.

20           BY MR. BURSEY (Resuming):

21           Q     Mr. Cosby, as a transportation expert, I am sure  
22 that you have considered the difficulty that might arise  
23 from the anxiety that you mentioned previously of families  
24 being separated. I have been concerned about the difficulty  
25 that might arise from the order to evacuate children on the

1 school buses and the distraught mother coming and trying to  
2 stop the bus and get her child off, and perhaps that  
3 scenario being repeated a number of times before the bus can  
4 make its way out of what could turn into a mob scene.

5           Have you, in your experience, considered this, and  
6 have some suggestions as to how that situation could be  
7 mitigated?

8           A       (WITNESS COSBY) If I could answer that question  
9 in general first and then get to specifics. I have done  
10 considerable research into this matter of evacuations, and I  
11 find that there is no evidence in record of panic of  
12 emotional people, of irrational, responsive people involved  
13 in an emergency situation.

14           I derive that from a number of literature sources  
15 which I will be glad to provide to you and others if you  
16 find it necessary, but I cannot recall them off the top of  
17 my head. There was one evacuation risk and evaluation  
18 published by EPA back in 1974 I believe, and it quoted some  
19 studies that in no case in natural disasters was there  
20 evidence of panic, was there evidence of people acting  
21 irrationally. In fact, people appear to act more rational  
22 and have a more independent initiative in a case of hazard  
23 exposure on the average than they do under other circum-  
24 stances.

25           To answer your specific question, I did not

1 address this bus plan on the hazards of a mother trying to  
2 stop a school bus to remove her child. I did not feel that  
3 that was probable, although it is possible. I do not  
4 believe that it is a high enough probability that we should  
5 devote any time to it.

6 Q Mr. Cosby, I believe your maximum time estimate  
7 for evacuating the ten-mile zone is 199 minutes or a little  
8 over three hours. Is that correct?

9 A (WITNESS COSBY) That is correct.

10 Q And so, the original estimate, Mr. Beale, that you  
11 provided of a maximum time of 3 hours and 20 minutes -- then  
12 there is not a whole lot of difference, if I am comparing  
13 the same situations. Was that 3 hours and 20 minutes the  
14 time to get the people that needed special transportation  
15 out, also?

16 A (WITNESS BEALE) No, I think the original study  
17 that I did was primarily for the general populace for  
18 adverse weather conditions, et cetera, and I do not have  
19 something in front of me to refresh my memory, but that was  
20 based on that type of situation.

21 Now, maybe if I could get a copy of that or some-  
22 thing to refresh my memory. But to my understanding, when  
23 we submitted that information originally back in 1980 it did  
24 not cover that in as much detail as the Wilbur Smith study  
25 has done.



1 Q What was your maximum time estimate?

2 A (WITNESS BEALE) In my study?

3 Q Yes, sir. Is it the one that is contained in your  
4 pre-filed testimony?

5 A (WITNESS BEALE) The statement that is in my  
6 pre-filed is based on the Wilbur Smith study.

7 Q The three hours and 20 minutes. Well, your pre-  
8 filed says the original estimate -- .

9 A (WITNESS BEALE) Oh, I am sorry, that is correct.  
10 That was from the initial study that I did, that I had  
11 performed. Yes.

12 Q And that was your worst case scenario for the  
13 transportation disadvantaged?

14 A (WITNESS BEALE) I would have to refresh my memory  
15 on that. I am not sure that it says disadvantaged. If I  
16 had a copy of it I could probably -- I do not remember  
17 specifically if it addressed disadvantaged personnel or the  
18 public.

19 Q Well either way, we are looking at a little over  
20 three hours, and I am concerned that a significant accident  
21 could actually move quicker than that. Mr. Beale, do you  
22 have an understanding that we could actually see a signifi-  
23 cant radiation dose? Even at the boundary of this ten-mile  
24 zone, given a five-mile an hour wind we could see perhaps in  
25 a given plume zone, we could see a lethal dose of radiation;

1 if there were a five-mile an hour wind, we could see within  
2 two hours after a significant loss of cooling, we could see  
3 a lethal dose of radiation reaching the perimeter of the 10-  
4 mile EPZ prior to three hours, couldn't we?

5 A (WITNESS BEALE) Well, I think in getting back to  
6 the comparison, I think it is, in my opinion, comparing  
7 apples to oranges. If it is a recollection of my memory  
8 that the study that I did was dealing strictly with transpor-  
9 tation assuming the number of people and to evacuate with a  
10 certain speed, the total of three hours or the 199 minutes  
11 that you mentioned was strictly the worst case for disadvan-  
12 taged or people requiring transportation.

13 I would say that a majority of the public or the  
14 population would get out or evacuate in a much more speedy  
15 manner, such as is mentioned, 81 minutes. So we are talking  
16 about a small number of people getting out in the 199  
17 minutes.

18 Q Yes, sir, but it is true that we may not able to  
19 accomplish total evacuation within the shortest time period  
20 that we could conceptualize a major accident spreading radia-  
21 tion in the ten-mile zone.

22 A (WITNESS BEALE) That is possible.

23 A (WITNESS COSBY) May I add something to that, Mr.  
24 Bursey? As I mentioned, Wilbur Smith did 9 of the 12 most  
25 populace areas nuclear facility evacuation time assessments

1 for FEMA. Two other sites -- no, three other sites were  
2 performed -- similar studies were performed by two other  
3 consultants.

4 I have before me FEMA Report No. 3 entitled  
5 Dynamic Evacuation Analyses; Independent Assessment of  
6 Evacuation Times from the Plume Exposure Pathway Emergency  
7 Planning Zones of 12 Nuclear Power Plants, published by FEMA  
8 dated February 1981. Of those 12, there is not a single  
9 site which had an evacuation equal to what we figured for  
10 South Carolina Electric & Gas.

11 I might quote the times of these people's worst  
12 adverse condition evacuations. The closest one was three  
13 hours and 50 minutes for Midland, which is up in Michigan.  
14 The worst is 12 hours estimated for Shoreham in Long  
15 Island. Now, these are evacuation times that have been  
16 reported to FEMA.

17 Our estimates have been accepted as valid or good  
18 as the state-of-the-art would provide, and have been  
19 included in a report to the President in December 1980  
20 summarizing the preparedness of atomic power plants, nuclear  
21 power plants, in the United States. And certainly,  
22 therefore, I do not feel that three hours and 20 minutes of  
23 time estimate in our case warrants any kind of panic inter-  
24 pretations that you are trying to imply.

25 Q Well, sir, I certainly appreciate you enlightening

1 us on that. Unfortunately for me, I live here in the EPZ of  
2 the reactor that we are presently hearing the licensing on,  
3 and I think that if we move on beyond the efficacy of your  
4 study and how you do your numbers, it still leaves us with  
5 the possibility of some people being left in the zone that  
6 might be seriously irradiated, and it still leaves us with  
7 the difficulty of counting on local resources to be able to  
8 mobilize what, in my estimation in listening to the  
9 witnesses that we have had here in the last ten days, leaves  
10 me less than confident that all the bugs are yet worked out.

11 But I think that that pretty much concludes my  
12 questions for Mr. Cosby and I have a few more for Mr. Beale  
13 would be willing to pass Mr. Cosby on to other parties.

14 CHAIRMAN GROSSMAN: Mr. Goldberg? I'm sorry. Do  
15 you have any questions for Mr. Cosby?

16 MR. GOLDBERG: May I have one moment, please,  
17 Judge?

18 CHAIRMAN GROSSMAN: Sure.

19 (Counsel for the staff conferring.)

20 MR. GOLDBERG: We have no questions of Mr. Cosby.

21 CHAIRMAN GROSSMAN: Mr. Wilson?

22 BY MR. WILSON:

23 Q Mr. Cosby, do you have a copy of the report, the  
24 evacuation time assessment, that you prepared for the appli-  
25 cant in this case before you?

1           A       (WITNESS COSBY) I have my copy, yes, sir.

2           Q       On page 6 in the first full paragraph, I believe  
3 this is indicating that census data was used to provide the  
4 estimates for the ratio of rural households with and without  
5 automobiles to households in the county areas we were  
6 looking at. And I notice at the end of that paragraph you  
7 have discounted the Richland and Lexington County  
8 statistical data down to 5% for those zones because of a  
9 different demographic makeup.

10          A       (WITNESS COSBY) That is correct.

11          Q       What basis did you have, or did you use, for that  
12 discounting or reduction?

13          A       (WITNESS COSBY) We used information that we had  
14 gathered from Midland Regional Planning Commission, and it  
15 confirmed our feelings that the areas in Lexington and  
16 Richland County are generally around and surrounding the  
17 areas of Irmo.

18                 As you know, since 1970 this area has  
19 significantly changed its character. It is a bedroom  
20 community for Columbia, and most of the people commute to  
21 Columbia for their work. And therefore, the population has  
22 expanded. But the persons in households without cars most  
23 probably have not expanded. Therefore, the percentage would  
24 have decreased on that basis, and they estimate it, and I  
25 agreed with this 5% figure that we quote.

1 Q Do you know whether or not that Midland Regional  
2 Council Planning information was based on the census data  
3 with that kind of detail?

4 A (WITNESS COSBY) It could not have been based on  
5 anymore recent data than I have in my 1970 census informa-  
6 tion because it is not available even yet. 1980 census data  
7 is not available even yet. But it was based on other  
8 studies that they had independently performed for other  
9 purposes, and I take advantage of those data.

10 Q All right, Mr. Cosby. I hate to say it, but let's  
11 go back to the school buses just a minute. Over on page 30  
12 I note that in the third full paragraph you have assigned a  
13 value of 45 miles per hour for the schoolbus trips. Are you  
14 aware that by state law, schoolbuses are limited to a 35  
15 mile an hour maximum?

16 A (WITNESS COSBY) I was not aware that this was an  
17 operating procedure for an evacuation. I did not realize  
18 that there would be such a limit on that kind of operation.

19 Q There is, also, as a practical matter, they are  
20 physically governed. The buses have a physical governor on  
21 them and it would seem to present some change in  
22 circumstance for your calculations. I just wonder, at a  
23 glance, if maybe you could tell whether or not that would be  
24 a significant change in your estimations.

25 A (WITNESS COSBY) Thirty miles an hour would

1 increase the travel time by about 30%. I have estimated 16  
2 minutes, so it would add another approximate five minutes.  
3 It would be 21 minutes for that evacuation.

4 Q And over on the next page, in the first full  
5 paragraph, the estimates there, are those based on a 45 mile  
6 an hour speed, too?

7 A (WITNESS COSBY) They were.

8 Q In that neighborhood?

9 A (WITNESS COSBY) But it would have the same  
10 fractional upgrading.

11 Q Upgrading approximately a third?

12 A (WITNESS COSBY) Of the time, yes.

13 Q Before I leave this -- this is the last area --  
14 maybe you can help me understand this. I understand there  
15 is a recognized preference for parents to be together with  
16 their offspring during an emergency, and I think that was  
17 noted here before. I just am a little curious at the logic  
18 in taking the time and the resources that may be needed  
19 elsewhere in an emergency situation to remove children from  
20 an area that is not in harm's way, to take them to be with  
21 their folks who may be, to locate them at the same place.  
22 And what is the necessity of moving those people other than  
23 just some preference to keep the families together?

24 A (WITNESS COSBY) I thought we had established we  
25 were going to take the school children to the shelters,

1 rather than back home.

2 Q That is right.

3 A (WITNESS COSBY) That was the initial plan. But  
4 then we revised it on the basis of local counsel that we  
5 could take them to the centers, so we did not take them back  
6 into the endangered zone; we took them to the shelters.

7 Q Yes, I understand the logic of that now. But,  
8 say, Chapin High School is not in a zone -- for instance,  
9 Chapin might not be in a zone that is threatened by a  
10 postulated accident. But say some parents were. I do not  
11 understand why the high school would be -- those children  
12 from the zones that were affected would have to be taken  
13 away and the resources to transport them taken out of  
14 service to accomplish that, to unite the families.

15 A (WITNESS COSBY) Chapin High School is part of the  
16 Lexington County school system, and the Lexington County  
17 boundary only incorporates evacuation Zone D-2, so it is  
18 only when the declared emergency involves the evacuation of  
19 D-2 would Chapin High School become involved in an  
20 evacuation.

21 Q Is there a possible situation, though, where we  
22 could have children going to school in an unaffected zone  
23 while their residential area is in the zone, and they have  
24 to be disrupted through there?

25 A (WITNESS COSBY) I recall no such possibility



1 here. I do not recall any possibility. Mid-Carolina High  
2 School is in Newberry County, the Newberry County school  
3 system. It serves roughly the areas identified as E-2 and  
4 E-1 in the evacuation zone area. It would be unlikely that  
5 E-2 would be evacuated unless E-1 was also evacuated. So I  
6 do not believe that we have such a circumstance here.

7           The rest of the areas are pretty clearcut in that  
8 the McCroy Liston School is in Fairfield County and it is in  
9 evacuation Zone A-2, and the students generally are  
10 residents of A-1 and A-2 and perhaps of part of that area.

11       Q       Generally, though, if it were to occur that there  
12 was a situation that would require or seem to indicate  
13 according to the plans and the estimates, that the children  
14 would have to be moved from an unaffected area, would that  
15 offer, in your estimation, an efficient use of those  
16 resources?

17       A       (WITNESS COSBY) It would not be a reasonable  
18 thing to take a child from a school not in an endangered  
19 zone and transport him into an endangered zone. If that was  
20 the question.

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1 Q No. I mean not into the danger zone but into the  
2 relocation area for the -- or the reception center for that  
3 endangered zone.

4 A (WITNESS COSBY) Let me back up. I do not  
5 understand the question.

6 Q I am trying to understand the situation, too, and  
7 I do not want to belabor the point, but it does seem to me  
8 postulated, at least through the estimates here, some of the  
9 premises that have gone into it, and I am wondering where  
10 you have that -- if you have that situation where a zone is  
11 in danger, and the parents are sent to the reception center  
12 for that endangered zone, as I understand portions of this  
13 plan or the evaluation, it would call for the children from  
14 that zone, albeit not in harm's way at that point, but as I  
15 understand this, those children would be under this plan be  
16 directed to the reception center where their parents were  
17 assigned.

18 A (WITNESS COSBY) That is correct, yes.

19 Q All right. And I am just wondering in a situation  
20 such as I just postulated, what purpose is served, what  
21 efficient emergency purpose is served in following that kind  
22 of course?

23 A (WITNESS COSBY) Well, you have several options,  
24 and to answer your question I must be a little bit complex.

25 First of all you said that the parents would be

1 sent to a shelter. It has been the experience in natural  
2 disasters that only about 20 percent of the evacuees choose  
3 to go to a public shelter. So consequently, these parents  
4 could choose and elect to go to a motel, to relatives  
5 outside the zone or various other locations other than a  
6 shelter.

7 Q Well, if the children had been moved to a  
8 reception center, can they come get them or what? Go  
9 ahead. I am sorry. I didn't mean to interrupt.

10 A (WITNESS COSBY) You have the option, therefore,  
11 of creating a traffic jam at a school by having the parents  
12 before they depart, they are going to evacuate, have those  
13 parents go to the school to pick up their children or go to  
14 a reception center which is outside of the congested area,  
15 if you can see what I mean.

16 I think it would be better to have a central point  
17 outside of the endangered zone to go and rendezvous with  
18 their child or children and join them in whatever elective  
19 shelter they seek, whether it is in a public shelter or  
20 elsewhere, than it would be to have them pick them up at  
21 school, which is under the premise in an endangered zone, if  
22 I understood your question.

23 Q Well, the school may not be in the endangered zone  
24 is the postulated scenario I had given you. I see an awful  
25 lot of congestion though at the relocation center or the

1 reception center, people coming and going. And I am a  
2 little hesitant to accept that as being a more efficient  
3 method than simply leaving the children say, you know, in an  
4 unaffected school area.

5           You are concentrating populations at the reception  
6 center is what I am saying, and you already have a known  
7 location with the student body there at the school.

8           A       (WITNESS COSBY) Are you saying there is a  
9 concentration at the shelter? I think my testimony was only  
10 20 percent of the evacuees would choose that shelter. The  
11 remaining parents who do have children in school would only  
12 go and pick up and rendezvous with their children and leave  
13 their children.

14          Q       I am sorry. What percentage would not have  
15 children do you estimate?

16          A       (WITNESS COSBY) Oh, I --

17          Q       I know 20 percent would not avail themselves of  
18 the public facilities, but certainly there is bound to be a  
19 different percentage of those associated with having to go  
20 there anyway to pick up children, as well as perhaps be  
21 there for their own benefit.

22          A       (WITNESS COSBY) Well, all I can say is that that  
23 was the reasoning, and purpose and logic behind our plan,  
24 and that was to provide a place, a standard place for people  
25 that were evacuating a zone to rendezvous with their

1 children and continue their evacuation.

2 Q Somehow I see Mr. Bursey's scenario with a  
3 housewife with the shotgun stopping the school bus in this a  
4 little too much. Eighty percent of the people are not going  
5 to avail themselves of this thing. It may be apples and  
6 oranges at this point, but I mean, that is the understanding  
7 I am trying to clear up, too, Mr. Cosby, and I appreciate  
8 your efforts.

9 While I am in the same area, I would like to  
10 direct a question, if I could, to Mr. Beale about the  
11 reception center since I am here at this point.

12 The plans for the reception center, Mr. Beale, I  
13 understand have to allow for processing of everyone who is  
14 evacuated within 12 hours. You have to process them all  
15 within 12 hours.

16 And I am just curious with this kind of  
17 concentration what likelihood you have as to the shelters  
18 being able to accommodate that kind of load.

19 A (WITNESS BEALE) From my discussions with all the  
20 county agencies in question, the four-county civil defense,  
21 it is my understanding they could adequately accomplish  
22 that. And seeing the facilities that they have identified,  
23 it has not really been a concern of mine.

24 Q I am sorry. I believe I said shelters earlier,  
25 and I meant centers. It does not change your answer I do

1 not believe. I wanted to correct myself. I misspoke.

2 I do have more questions of Mr. Beale, but since  
3 we are passing Mr. Cosby around and I presume trying to free  
4 him, that is all I have, Mr. Chairman.

5 WITNESS COSBY: Mr. Bursey, to point out though,  
6 you asked earlier about the percentage of people that were  
7 without cars, transportation disadvantaged. I did locate  
8 that during the break. It is on page 6. And to enter that  
9 in, it is about 25 percent of the rural households in  
10 Fairfield County have no cars available. The figure for  
11 Newberry County is 17.6 percent, for Richland County it is  
12 14.7, and for Lexington County it is 12.5. That is based on  
13 the 1970 census, and they were adjusted, the last two  
14 figures were adjusted downward to 5 percent; in other words,  
15 those were Lexington and Richland Counties were made 5  
16 percent less. The other two counties remained the same.

17 MR. KNOTTS: May I ask the witness a couple of  
18 questions, or would the Board prefer to go first?

19 CHAIRMAN GROSSMAN: I was going to have the Board  
20 ask questions and then Mr. Knotts, your turn.

21 MR. KNOTTS: That is all right.

22 BOARD EXAMINATION

23 BY MR. LINENBERGER:

24 Q Well, Mr. Cosby, I was a little concerned about  
25 your seeming to take consolation from the favorable

1 comparison of these response times with those resulting from  
2 analyses of other facilities.

3 I suppose in some respects it is nice to know, but  
4 the question comes down to whether these times are adequate  
5 in terms of, well, as is implicit in some of Mr. Bursey's  
6 comments, in terms of whether it leaves anybody around left  
7 over for harmful exposure.

8 So to what extent did you attempt to determine  
9 whether the times that derive from you analyses are  
10 acceptable, or did you just derive these times and not  
11 attempt to make a determination of whether they were  
12 acceptable?

13 A (WITNESS COSBY) To answer that, Judge, I am not a  
14 nuclear physicist.

15 Q Understood. No, just --

16 A (WITNESS COSBY) I did not, no.

17 Q That is all I wanted answered. Thank you.

18 Because your presentation is directly related to  
19 Mr. Beale's, I only want to ask your view, Mr. Beale. Are  
20 you aware of anything with respect to any of the  
21 assumptions, methods of moving people or whatever used by  
22 Mr. Cosby that are in any sense contradictory to what you  
23 have looked at or used as inputs to the Applicant's plan?

24 A (WITNESS BEALE) No, sir.

25 Q And you have carefully considered this, that there

1 is nothing contradictory to the methods of moving people or  
2 the routes of moving people that were used by Mr. Cosby to  
3 get these response times that are inconsistent for the  
4 Applicants?

5       A       (WITNESS BEALE) Well, at the time, just to  
6 elaborate a little bit, as I pointed out in Mr. Bursey's  
7 question, the evacuation time assessments I performed were  
8 primarily tied into strictly assuming people had vehicles to  
9 leave and not disadvantaged such as requiring buses or any  
10 other special transportation.

11               I was very much interested and concerned when we  
12 utilized the services of Wilbur Smith to come about with  
13 means for handling special cases of transportation such as  
14 buses, and we worked very closely with the counties and the  
15 state for coming up with methods of alternatives to handle  
16 the situation. And from that I feel like that it has been  
17 handled and incorporated in a proper manner.

18               MR. LINENBERGER: Thank you.

19               CHAIRMAN GROSSMAN: Mr. Knotts.

20                               REDIRECT EXAMINATION

21               BY MR. KNOTTS:

22               Q       Mr. Cosby, could you tell us a little bit about  
23 your educational background, sir?

24               A       (WITNESS COSBY) I graduated in 1941 from the  
25 University of South Carolina with a Bachelor of Science



1 degree in electrical engineering. I was called on active  
2 duty as an ensign in the Navy. I attended Cal Tech,  
3 California Institute of Technology in the summer of 1941  
4 taking a special course in aeronautical engineering. Upon  
5 completion of that course I was sent to MIT, Massachusetts  
6 Institute of Technology, to attend the radar school there.  
7 Subsequent to completion of that course I stayed on as an  
8 instructor at MIT for about three months.

9           After the war I taught at the University of South  
10 Carolina School of Engineering. I spent about 30 years in  
11 the aerospace industry as an electronics engineer. I have  
12 been with Wilbur Smith and Associates for over 11 years. In  
13 the last two years I have performed not only the nine  
14 nuclear evacuation time assessments for the nine nuclear  
15 power plants for FEMA; I have also made similar estimates  
16 for San Onofre, California. I have also done -- completed  
17 in January of this year the transportation modeling task for  
18 the evacuation of the four county area incorporated in the  
19 Tampa Bay region. This plan evacuated 750,000 people at  
20 various levels of intensity of storms using a model that was  
21 identical -- well, I will not say identical, but the  
22 premises and the principles were identical to those that  
23 were used for the V.C. Summer Nuclear Power Plant time  
24 assessment.

25           Q       Excuse me just a second, sir. What was the risk

1 in the Tampa Bay example? Was it Tampa, Florida?

2 A (WITNESS COSBY) Tampa Bay; Tampa, Florida, yes.

3 It incorporated Pinellas, Hillsboro, Manatee and the county  
4 to the south of that. It was performed under proposed  
5 scenarios of five different types of hurricane storms coming  
6 in. Wind risks and flood risks were included in that, and  
7 identified evacuation zones were provided on the basis of  
8 sophisticated computer modeling of these storms and their  
9 tracks and the surge flooding of the waters in Tampa Bay due  
10 to the various tracks.

11 Q Thank you, sir. Did that complete your response?

12 A (WITNESS COSBY) Yes.

13 Q Yes. Thank you.

14 Have you had an opportunity to look at the copy of  
15 your report that Mr. Beale has there at the table with you?

16 A (WITNESS COSBY) Yes, I have.

17 Q And is that a copy of the report you prepared that  
18 you have been discussing?

19 A (WITNESS COSBY) It is.

20 Q The evaluation time assessment for Virgil C.  
21 Summer.

22 A (WITNESS COSBY) Yes.

23 MR. KNOTTS: At this time, Judge, I would like to  
24 again offer Applicant's Exhibit 15-B.

25 CHAIRMAN GROSSMAN: Mr. Bursey.

## 1 RE CROSS EXAMINATION

2 BY MR. BURSEY:

3 Q I have one more question. Did Mr. Knotts just ask  
4 you to give some of your experiences in past natural  
5 disasters, and you listed some events that you have been  
6 involved in the evacuation or emergency procedures for?

7 I wanted to ask in your mind if you felt that a  
8 nuclear event such as a major accident at the V.C. Summer  
9 plant is analogous in your mind in regard to planning to a  
10 hurricane?

11 A (WITNESS COSBY) The document that I cited,  
12 evacuation risk and assessment by EPA -- and I do not have  
13 the exact reference, but I can provide it -- takes this very  
14 point into consideration.

15 There have been a number of studies at Ohio State  
16 University Department of Social Studies, Sciences and so  
17 forth, at Mississippi State, at Texas Tech University, at  
18 Stanford University on the comparative responses of public  
19 to various risks of various kinds -- floods, hurricanes --  
20 and their attempts to project these responses and these  
21 reactions to a nuclear evacuation.

22 That was the specific task of this study. And as  
23 I said, they find no evidence psychologically or otherwise  
24 that would lead them to believe that persons will respond  
25 significantly differently to a radiologically motivated

1 emergency than they would from a natural disaster with the  
2 following exceptions, and they are exceptions.

3           A hurricane is not an immediate, instantaneous,  
4 sudden event. It is something that evolves over periods of  
5 hours and days. People's responses to a hurricane,  
6 therefore, are considered over that period of time rather  
7 than as a result of an evacuation warning.

8           From that standpoint the public reaction is spread  
9 over a lot longer period of time than would be the time that  
10 you would expect them to respond to a nuclear emergency.  
11 Studies of, for instance, the Hurricane Frederick in Mobile  
12 and the Hurricane Diane, I believe it was, in Miami  
13 indicated very strongly, if you can rely on the statistical  
14 analysis of post-evacuation interviews conducted by the  
15 University of Minnesota, decisions to leave their homes and  
16 evacuate had very, very insignificant relationship to the  
17 time of the warning to evacuate.

18           There was some significant percentage of the  
19 population that evacuated well prior to the actual warning  
20 of evacuation. We did not assume that kind of distribution  
21 of response in the V.C. Summer nuclear power study. We  
22 assumed something very, very much more immediate in response  
23 than in a natural disaster situation.

24           But with that exception, the time, the  
25 distribution of time of response of the public, with that

1 exception other responses seemed to not have any significant  
2 relationship that would cause a difference in response to a  
3 nuclear emergency than to a natural disaster.

4           People view hazards and risks of hazards in more  
5 or less the same light. You die just as readily from being  
6 drowned by a hurricane, a flood as you would from other  
7 incidences that might occur due to a radiological incident.  
8 You probably would die more readily and more rapidly from a  
9 hurricane.

10       Q     Yes, sir. I believe you had stated earlier that  
11 we do not have any experience in America in general, to the  
12 case specific the people living around this plant do not  
13 have any perceptual grasp of a significant nuclear accident,  
14 is that right?

15       A     (WITNESS COSBY) That is true. I have made my  
16 remark, though, about the operation and public response to a  
17 nuclear incident rather than to specifically the V.C. Summer  
18 plant. We have not had an evacuation, and therefore, we  
19 have no basis upon which to judge in scientific detail their  
20 responses.

21           But psychologically the psychologists tell us that  
22 they see no --

23       Q     Yes, sir.

24       A     (WITNESS COSBY) -- Possibility of difference.

25       Q     With all due respect, I must be reading different

1 psychological manuals than you do. I am concerned the  
2 premises from which you drew this time estimate study is  
3 reflected by the attitudes that you have just stated, that  
4 you are taking the people's low stress level and your  
5 personal estimation that I am overestimating the seriousness  
6 of the event may indeed have colored or in some way  
7 minimized the variables that need to be considered in order  
8 for us to get a real, true assessment of time to evacuate.  
9 And that was my point.

10 A (WITNESS COSBY) Mr. Bursey, are you familiar with  
11 Appendix 4 to the revision to nuclear regulation 0654, FEMA  
12 report number 1?

13 Q I do not know, Mr. Cosby. I do not -- you are my  
14 witness; I am not your witness.

15 CHAIRMAN GROSSMAN: You're not supposed to be  
16 asking questions. If you have an answer --

17 WITNESS COSBY: I do have an answer, because  
18 specifically that document refers to this response time in  
19 detail and is the result of not only my efforts -- and I  
20 specifically contributed to the formulation of these  
21 response times -- but to those of others in the  
22 transportation business and in the evacuation area. And  
23 they divide this response time into those four areas that I  
24 spoke of earlier.

25 BY MR. BURSEY: (Resuming)

1 Q Are you familiar with Parsons and Brinkerhoff?

2 A (WITNESS COSBY) Oh, yes.

3 Q Are they a reputable firm?

4 A (WITNESS COSBY) They are reputable.

5 Q Are you familiar with the transportation  
6 evacuation time estimates they did for the Three Mile Island  
7 EPZ?

8 A (WITNESS COSBY) Yes, I am.

9 Q Can you make some observations as to why their  
10 time estimates are much more in depth and specific as to  
11 exactly where the buses come from than your time estimates  
12 for the V.C. Summer plant?

13 A (WITNESS COSBY) I do not think they were more  
14 specific. You have to recall that Parsons-Brinkerhoff made  
15 that study prior to our evaluation of Three Mile Island in  
16 June 1980. It was on that basis that I am familiar with  
17 their study. You are dealing in one case with an area that  
18 has a population well in excess of 300,000 people, on the  
19 one hand, in the EPZ.

20 In the V.C. Summer plant EPZ we have a population  
21 that approximates 10,000 people. Now, certainly the detail  
22 in which you would go in making a plan for an evacuation of  
23 an area that is over approximately 300,000 would be much  
24 more detailed than that that you would have to commit and  
25 satisfactorily answer the question --

1           Q     Yes, sir. I appreciate that. I think a point I  
2 was making there was that whether there is 50 people or 500  
3 people, if you do not know exactly where the buses are  
4 coming from, it might pose a time lag in getting your hands  
5 on it.

6           I have one other point that I wanted to put in the  
7 record before we excuse Mr. Cosby, and that is the statement  
8 from the Federal Register as to the original intent, and I  
9 assume the standing intent of the EPZ. And it is 10 CFR  
10 50.47, Section 2. "The exact size and configuration of the  
11 EPZs surrounding a particular nuclear power reactor shall be  
12 determined in relation to local emergency response needs and  
13 capabilities as they are affected by such conditions as  
14 demography," and then it goes on to list a few other  
15 characteristics -- topography, land characteristics, et  
16 cetera.

17           But I just wanted to put that point on the record.

18           CHAIRMAN GROSSMAN: Thank you.

19           Any recross, Mr. Goldberg?

20           MR. GOLDBERG: No.

21           CHAIRMAN GROSSMAN: Mr. Wilson?

22           MR. WILSON: Let me just ask one question.

23           BY MR. WILSON:

24           Q     Mr. Cosby, the criteria in Appendix 4, are those  
25 the criteria used to conduct your time evaluation?



1 A (WITNESS COSBY) Appendix 4 is not a criteria  
2 document as much as it is a guideline of procedures.

3 Q Did you proceed along the guidelines in Appendix 4?

4 A (WITNESS COSBY) Yes, I did.

5 MR. WILSON: All right, sir. Thank you.

6 MR. KNOTTS: There is a pending offer.

7 CHAIRMAN GROSSMAN: Mr. Bursey, you have not  
8 responded. Did you object to Applicant's Exhibit 15-B?

9 MR. BURSEY: Yes, sir, I do. I do not feel  
10 comfortable at all that the exhibit has evidenced the depth  
11 and thoroughness that leads me to believe that it is a  
12 viable time estimate for the removal of all people in the  
13 EPZ.

14 CHAIRMAN GROSSMAN: Admitted.

15 Thank you.

16 (Discussion off the record.)

17 MR. KNOTTS: You are quite right. It is 30-B.

18 CHAIRMAN GROSSMAN: It is 30-B that is received in  
19 evidence. 15-B has already been received.

20 (The document previously  
21 marked as Applicant's Exhibit  
22 No. 30-B for identification  
23 was received in evidence.)

24 CHAIRMAN GROSSMAN: Mr. Bursey, you may continue  
25 with Mr. Beale.

1 (Witness Cosby was excused.)

2 CHAIRMAN GROSSMAN: Did you want to break now to  
3 reorganize, Mr. Bursey?

4 MR. BURSEY: Just a couple of minutes so I can get  
5 back to the flow of my questions here.

6 CHAIRMAN GROSSMAN: We will just sit for a few  
7 minutes until you reorganize.

8 (Recess.)

9 CHAIRMAN GROSSMAN: Mr. Bursey, you may proceed.

10 CROSS EXAMINATION - Resumed

11 BY MR. BURSEY:

12 Q Mr. Beale, I want to avoid as much as possible any  
13 repetition, but I wanted to ask on your prefiled testimony,  
14 page 14, you mentioned county officials that made several  
15 efforts to locate residents who might require special  
16 transportation.

17 How have they done that?

18 A (WITNESS BEALE) Well, I know for a fact that  
19 Fairfield County, for an example, has utilized newspaper  
20 ads. They have contacted clergy within the area of the  
21 station. They have contacted some citizens within the ten  
22 mile area to try to locate some of these disadvantaged type  
23 of people requiring special transportation, and some other  
24 counties, I understand that they have contacted some local  
25 citizens and whatever to try to obtain this information,

1 plus utilize state agencies, social services, whatever, to  
2 try to come up with a list of people requiring  
3 transportation.

4 Q And are they compiling a list that looks thorough  
5 at this point?

6 A Well, I do not know that Fairfield County is  
7 compiling a list, and they do have a list of people. To my  
8 knowledge the remaining counties are working on that, but I  
9 do not know if they have a physical list of people.

10 Q Do you know if Richland County has gone  
11 door-to-door? Colonel DeLoach assured me he was going to  
12 knock on every door in D-1 and ask them what their needs  
13 were. Do you know have they expressed that intent to you?

14 A I am not aware that they have physically gone  
15 door-to-door. I do know that they have attempted through  
16 some local meetings with prominent citizens or whatever in  
17 the area to try to obtain some volunteer help and other  
18 means to come up with a list. But I am not aware of a means  
19 of going door-to-door.

20 Q But at this time we do not have a comprehensive  
21 list of those that would need transportation assistance.

22 A Well, it depends on terminology to comprehensive  
23 -- as I indicated, there is a list within Fairfield County  
24 and the other counties I have stated. I know that the  
25 counties are attempting to try to locate as many of these

1 people as they can.

2       Q     On page 16, the bottom paragraph, you mention  
3 other protective actions involve the proper feeding and care  
4 of milk-producing animals within both emergency planning  
5 zones. What is your responsibility in regard to  
6 milk-producing animals?

7       A     Well, in case of an emergency situation to where  
8 the off site release to the public would reach a point in  
9 radiation exposure to where the feeding of animals on stored  
10 feed or obtaining the milk, et cetera, when that comes about  
11 then that would be recommended through the state by the  
12 utility.

13       Q     Through the state by the utility, meaning that you  
14 would be the one that would initiate the request for seizure  
15 disruption of milk or agricultural products.

16       A     I would not say we would be the initial. I would  
17 say that would be part of our responsibility, that based on  
18 the release, based on the isotopic content of the release  
19 and based on that, recommendations would be provided to the  
20 state to ensure action has either been initiated or will be  
21 undertaken for the possible feeding and storing or obtaining  
22 milk from these animals.

23       Q     Do you have any responsibility for notification to  
24 farmers and dairy farmers in the ten mile zone?

25       A     None that I am aware of.

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(Pause.)

Q On page 22 you begin discussion of your siren system, and the statement that 60 decibel sound level is what Appendix 3 requires. Is that the decibel level that your siren system is going to utilize?

1           A     The design of our system, siren system, is really  
2 based on a higher db level than 60.

3           Q     Do you know what it is?

4           A     It is approximately 68.

5           Q     Is this the siren system, the placement of the  
6 system, is this a design of your creation?

7           A     Yes.

8           Q     And how did you figure the most efficient  
9 placement of these sirens?

10          A     That was done through a study at the request of  
11 the utility through an outside agency, primarily Federal  
12 Signal Corporation which is a manufacturer of sirens. And  
13 they did an engineering study for the location of the sirens  
14 based on the geographic and demographic regions. And their  
15 study -- we came up with the present design, as I indicated  
16 earlier, of approximately 100 sirens.

17          Q     And that would ensure that anyone in the 10-mile  
18 EPZ would hear that siren of 60 plus decibals.

19          A     That is correct.

20          Q     And -- .

21          A     I should correct that. Let me just back up. What  
22 I am saying is that based on the demographic location of  
23 people, that the people located in those areas will hear the  
24 sirens. There are regions within the area that possibly the  
25 60 db will not be heard because of the location of people

1 who are not there. But where the population of people are,  
2 you will have the 60 db level sound.

3 Q If the tree falls in the woods and there is no one  
4 there, it makes no noise. Right?

5 (Laughter.)

6 Have you identified any low population areas where  
7 there are indeed people who would not hear the sirens that  
8 you have alternative means of notification for?

9 A None that I am aware of.

10 Q So to turn that question around and make a  
11 statement out of it, all residents in the 10-mile zone will  
12 hear the siren.

13 A Correct.

14 Q Now, that siren will be a steady blast of three to  
15 five minutes?

16 A Three minutes is the design of our system.

17 Q And then it stops for a determined period of time?

18 A No. The system works by activating the siren; it  
19 will sound for three minutes and then it will stop. To  
20 activate it again you must push the button. So once you  
21 push the button you cannot stop it, and it will run for  
22 three minutes.

23 Q Where is that button?

24 A As I indicated earlier, the main activation or  
25 switch is at the V.C. Summer nuclear station.

1 Q At your emergency command center there?

2 A At present, it will be right -- it will either be  
3 in the control room or adjacent to the control room.

4 Q And those are mechanically operated sirens that  
5 run on 110 volts of electricity, is that right?

6 A Not all of them. Some of them have a larger power  
7 requirement. But as far as the sirens themselves, they are  
8 radio tone activated.

9 Q What I was looking for is that the sirens are not  
10 battery powered.

11 A That is correct.

12 Q And in the event of a power loss that was  
13 associated with an accident, could the sirens be activated?

14 A Without power, no, they could not.

15 Q Does that cause you concern for perhaps an  
16 alternative source of power for the sirens?

17 A No, because I feel that if we have to notify the  
18 public within that affected area, we have a backup means by  
19 either utilizing emergency vehicles or either using heli-  
20 copters with speakers, blow horns that are available through  
21 the state.

22 Q And I believe you stated that you anticipate that  
23 your siren system will be in place and operable prior to  
24 going online.

25 A That is correct.



1 Q Do you consider that as the emergency coordinator,  
2 kind of an inhouse requirement that you want to see the  
3 company accomplish, to have their siren system in place  
4 before you tell Mr. Nichols to throw the switch?

5 A No, it is my understanding with the present  
6 schedule from the regulatory end that we must have the siren  
7 system operable if I am not mistaken by October of this year.

8 (Pause.)

9 Q Again on page 27, there is a mention of the Kelly  
10 Miller Elementary School and the Greenbrier Elementary  
11 School have recently been included for plans for the  
12 county. Is it your understanding -- . I believe we have  
13 gone over this before, I just want to get it straight in my  
14 mind. Those schools have been included in some sort of  
15 auxiliary plan for Fairfield County, that does not actually  
16 change the border of the EPZ. Is that right?

17 A No. In rephrasing a little bit, if I understand  
18 your question, the Kelly Miller School and Greenbrier  
19 Headstart have been included in the emergency plans for  
20 Fairfield County. If, through an emergency condition at the  
21 Summer station, an evacuation of that sector within the  
22 emergency planning zone were to be required, then the Kelly  
23 Miller and Greenbrier Headstart would be included in that  
24 evacuation program.

25 Q But have not been included in planning to date as

1 to time estimates or any other figures that would go along  
2 with the evacuation?

3 A They have not been included as far as evacuation  
4 time assessments, that is correct.

5 Q On page 32 -- that was the page Judge Grossman  
6 said we could not talk about.

7 CHAIRMAN GROSSMAN: No, I did not say that. I did  
8 not say you couldn't talk about that.

9 MR. BURSEY: Oh, well, we will talk about it.

10 BY MR. BURSEY (Resuming):

11 Q On page 32 you mention that state and local  
12 governments proceed from the same premise as NUREG-0534,  
13 that is, a large release of radiation such as might be  
14 associated with a very large core melting accident. Were  
15 you here when the county people testified and the state  
16 people testified over a period of two days?

17 A Yes, sir.

18 Q My personal experience belies the fact that they  
19 had based their emergency plans on a very large core melting  
20 accident. Can you tell me what discussions you had with the  
21 state and local people that appeared and testified about  
22 their emergency plans that lead you to believe that that is  
23 a true statement?

24 A Well, once again going back to my understanding,  
25 the state and local plans have been developed under the

1 guidance of NUREG-0654 which included the type of accidents  
2 addressed as far as loss of coolant type accidents. And  
3 based on their planning and development to meet the criteria  
4 of 0654, my assumption is they do meet the planning that is  
5 for the premise that is discussed in NUREG-0534.

6 CHAIRMAN GROSSMAN: Mr. Bursey, I do want to point  
7 out to you that your reference to the page is going to get  
8 lost somewhere. Those pages are not in the transcript, and  
9 whatever pages are in the transcript are not numbered,  
10 anyway.

11 If you have a question to ask with regard to pages  
12 -- what were pages 32 and the top of 33 in the pre-filed  
13 testimony, you ought to state a complete question.

14 MR. BURSEY: Thank you, sir.

15 MR. KNOTTS: Judge, may I get some clarification  
16 to that? I had assumed that the pre-filed testimony would  
17 be bound into the transcript and a line drawn through page  
18 32 and the first two lines of 33.

19 CHAIRMAN GROSSMAN: I did not understand that that  
20 was going to be done. Mr. Reporter, you are awaiting my  
21 instruction as to what ought to be done. I will retract  
22 what I said, Mr. Bursey. The page will appear in the trans-  
23 cript with a line drawn through it so that you need not put  
24 all that information in the preface to your questions.

25 MR. BURSEY: Thank you, sir.

1 BY MR. BURSEY (Resuming):

2 Q Mr. Beale, I believe you stated an understanding  
3 of what could happen, would be the possible consequences of  
4 a serious accident that could result in a loss of cooling  
5 that could result in a core melt that could result in a  
6 breach of containment and a release of a large amount of  
7 radiation. Is that right?

8 A Yes.

9 Q And have you discussed with your staff and other  
10 people in the company the emergency plans for dealing with  
11 this serious nature of massive radiation release in a short  
12 period of time?

13 A Well, I feel that the plans developed by the  
14 utility, SCE&G, is set up to the point to handle any  
15 emergency condition.

16 Q Yes, sir. I probably agree with you up to the  
17 point of human capability. I mean, do you agree with me as  
18 an emergency planner that there may arise at the V.C. Summer  
19 plant a situation that simply cannot be mitigated?

20 A Do you mean from the standpoint of eliminating the  
21 release of radioactive material?

22 Q Yes, sir.

23 A From the plant? Well, I think it is possible but  
24 highly improbable.

25 Q But probabilities aside, it is physically possible.

1           A     Yes.

2           Q     And then following that line of reasoning, as an  
3 emergency planner, what do you have planned in the event of  
4 an accident of this nature that could not be mitigated and  
5 might require your certainly having to take some action.  
6 What would that action be in such an instance?

7           A     Well, I think pretty much that what we have laid  
8 out in our procedures and plans would be pretty much  
9 followed in the same fashion except that there would be much  
10 more involvement by off-site and outside agencies. In other  
11 words, what I am saying is there may be a larger involvement  
12 by state and federal agencies and also by outside  
13 engineering such as Westinghouse and Gilbert Associates.

14          Q     Is there some contingency in your plans for some  
15 radiation level that would force you to fall back, so to  
16 speak, from the control room itself back to a secondary  
17 control facility?

18          A     There are certain guidelines that we have  
19 established for such emergency facilities, such as emergency  
20 operations facility or the technical support center if a  
21 certain radiation value were to be established. But once  
22 again, based on the design of the plan, we should not, you  
23 know, have to do that. But there are some guidelines  
24 presented within the procedural format to instruct our  
25 health physics people that if such values are reached,

1 consideration for evacuation to a backup facility should be  
2 recommended.

3 Q And where is that backup facility?

4 A Well, for the present if you are talking -- it  
5 depends on which facilities you are talking about. Which  
6 ones? You asked the question.

7 Q I thought you mentioned one. I was asking about  
8 the one you mentioned. You said a backup facility. It is  
9 some kind of forward emergency operations center?

10 A No, we have what we call an interim emergency  
11 operations facility. We have a backup to that which is the  
12 old CVTR project which is approximately a mile and a half,  
13 two miles, away from the facility. That is the backup for  
14 the emergency operations facility.

15 For the technical support personnel, if they would  
16 have to evacuate, if that would ever happen, then they would  
17 evacuate to the same facility.

18 Q And from the CVTR, what type of control or  
19 monitoring devices or mechanisms do you have to gauge what  
20 is happening in the reactor?

21 A At present we have none to indicate anything as  
22 far as the reactor.

23 Q Is that technically feasible? Are you  
24 anticipating having some monitoring devices that from that  
25 distance will be able to tell you what is happening in the

1 containment building?

2       A     It is, as I indicated, the present -- the one I am  
3 discussing now is what we call the interim emergency  
4 operations facility. We do have plans at present of  
5 building a permanent structure emergency operations facility  
6 which my understanding is will have the capability of  
7 readout of the control room, certain parameters in the  
8 control room. That is an ongoing process right now that is  
9 taking place.

10       Q     Is that mandated in -- by the Nuclear Regulatory  
11 Commission? That you have an emergency operations facility  
12 that has that type of monitoring capability?

13       A     That is addressed in NUREG-0696, and that is being  
14 reviewed and under consideration now by SCE&G. I am not  
15 really aware, and I cannot really speak specifically in your  
16 question about reactor control or reactor parameters for  
17 that. I know that is being discussed and I know that is  
18 being looked into.

19       Q     Now from an emergency planning standpoint, it is  
20 my understanding that if there is some event that we will  
21 call a PWR-1 where you have a breach of containment were to  
22 transpire, we would have perhaps an ongoing release of  
23 radiation. Is that right?

24       A     That is possible.

25       Q     And I have really no good idea as to how long that

1 might or could possibly be sustained. As an emergency  
2 planner, I am sure you know better than I how long could a  
3 release of radiation from such an accident be anticipated to  
4 last.

5 A Off the top of my head, I really could not address  
6 that as far as a length of time. I do know that some  
7 studies have gone into that, the length of time. But I am  
8 not, right off the top of my head right now, aware of those.

9 Q Hours, days?

10 A Yes, I am sure hours.

11 Q And in the ensuing period of time we could have  
12 several changes in wind direction. Is that right?

13 A Possible.

14 Q Complicating your job considerably, is that right?

15 A Well, it is, your know -- I would not say it  
16 complicates it but it would involve much more of the  
17 populace with the wind change.

18 (Pause.)

19 Q I believe that the simulated accident of last May  
20 entailed a hypothetical release to the Broad River, is that  
21 right?

22 A That is correct.

23 Q Can you tell me what that release was postulated  
24 at, and what radioisotopes were supposed to be in that?

25 A I cannot remember from memory as far as the



1 isotopic breakdown. I think we gave it in a gross activity  
2 number rather than isotopic qualification. And I think we  
3 were utilizing a number of something like, if I remember  
4 correctly, around 10<sup>-3</sup> microcuries per ml. And released  
5 an unplanned release to the ten stocks which, vice versa,  
6 went to the lower reservoir and then eventually to the Broad  
7 River.

8 Q And who detected that release?

9 A Well, there are several ways. We have online  
10 monitoring that monitors that, and that was part of the  
11 scenario and the indication to the control room that the  
12 monitors picked up the increased radioactivity level for  
13 those monitors.

14 And then once we determined that, certain grab  
15 samples were taken that were initiated by the health physics  
16 personnel in our emergency operations facility. And they,  
17 in turn, notified the state for their sampling and for  
18 downstream, that type of thing.

19 Q And you would have detected that at which pen  
20 stocks?

21 A The Fairfield.

22 Q Fairfield as the water was passing through into  
23 the Parr Reservoir?

24 A The monitor itself for monitoring that release  
25 point is in the plant proper in V.C. Summer nuclear

1 station. It monitors prior to what we call dilution to the  
2 10 stocks. Once you see an increase in activity, a response  
3 to that alarm would normally be to go and sample the pen  
4 stocks or the lower reservoir area for increased activity.

5 Q Let me see. The water, then, would be activating  
6 the alarm. Where would this water physically be? Now, the  
7 monitoring device I understand you to say is in the control  
8 building, but where is the water that it is monitoring?

9 A The water is allowed that is going to the pen  
10 stocks.

11 Q And so actually, we have the water as it is  
12 preparing to leave the Monticello reservoir.

13 A No. As it is leaving -- in other words -- I will  
14 try to make it simple for you. You have a tank in the  
15 plant. There is a line, a pipeline, that leaves it to go to  
16 the pen stocks. On that line is a monitor that monitors the  
17 radioactivity. There are really several monitors. There is  
18 redundancy so that we do not have a problem of one monitor  
19 being out of service and the activity going unmonitored. So  
20 there is a primary and a backup.

21 That line goes to the pen stocks, and the pen  
22 stocks vice versa go to the lower reservoir and into the  
23 Broad River. The monitoring question that I mentioned would  
24 be at -- within the plant protected area fence under our  
25 control and the line typically goes down to the pen stocks.

1 Q And after the release was detected, what  
2 mitigation steps are taken?

3 A Acting to terminate the release, that is the first  
4 thing. And to assure that if there is such a release -- you  
5 could have a malfunction of a monitor. That is one of the  
6 benefits of a backup, to verify. But if the release is  
7 actual, then the normal operating procedure is actually to  
8 find where the release is coming from. And then if it is  
9 verified, to take certain sampling of the pen stocks, and  
10 naturally, if it is tied into an implementation of the  
11 emergency plan, to notify the offsite agencies.

12 Q But once the contaminated water leaves your  
13 immediate area -- and I do not know where that immediate  
14 area begins or ends, I do not know whether it would be the  
15 Parr Reservoir. But let's just for the sake of this  
16 discussion put the water in the Broad River, and you notify  
17 the state and local agencies. What then are the mitigating  
18 steps that are taken to prevent that water from being  
19 consumed.

20 A Well, it depends a lot on the severity of the  
21 release. If the release is to the point where no protective  
22 actions or implementing actions are necessary, none will be,  
23 I am sure, taken by the state. If the release would be  
24 significant to the point where water usage would be  
25 curtailed, then the state, et cetera would take appro-

1 priate action.

2           But once again, based on the flow and the amount  
3 of dilution that you have with the pen stocks and the  
4 Fairfield pump storage facility, it is almost impossible to  
5 get to a level of radioactivity in that water to the point  
6 where you would curtail the intake or the use of that water.

7           Q     This simulated release on May 1, did that cause  
8 any mitigating action to be taken by the state and local  
9 agencies?

10          A     Well, I think that they did initiate some sampling  
11 of the river and the area. To the extent of what sampling  
12 they did, I really cannot answer that. I do know that we  
13 took the SCE&E' action 2 sample and it is my understanding  
14 that they did the same, and that is really all that I can  
15 address at this time.

16          Q     The Columbia water system is drawn, I believe, 22  
17 water flow hours downstream. Is that right?

18          A     I am not sure, but thereabouts, somewhere in that  
19 ballpark.

20          Q     Are there any monitoring devices there at the  
21 Columbia water system intake?

22          A     I really cannot answer that. I am not aware of  
23 that.

24          Q     The company has none?

25          A     Once again, I'm sure that if you want to get into

1 the radiological-environmental monitoring program we have  
2 somebody here that can address that, but I do not know.

3 Q Do you know -- simply, the last question was, does  
4 the company have any monitoring devices downriver on the  
5 Broad?

6 A To my knowledge, there is none, but I really  
7 cannot speak because I do not know.

8 (Pause.)

9 MR. BURSEY: Thank you, Mr. Beale.

10 CHAIRMAN GROSSMAN: Mr. Goldberg?

11 MR. GOLDBERG: I just have a handful of questions  
12 and I will try to make them brief.

13 BY MR. GOLDBERG:

14 Q Mr. Beale, Mr. Bursey expressed a repeated concern  
15 about the ability to take appropriate protective action to  
16 protect the general public in the event of a serious  
17 accident. Isn't it true that your emergency plans are  
18 designed to deal with varying levels of accidents which, I  
19 believe, are broken down into four emergency  
20 classifications? Is that correct?

21 A That is correct.

22 Q Is a general emergency the most serious  
23 classification?

24 A Correct.

25 Q Let me ask you this. In the declaration of a

1 general emergency, isn't it true that a decision to imple-  
2 ment protective action would be made on the basis of  
3 conditions at the plant which indicated a potential for  
4 offsite radiological releases and would not await the actual  
5 release of radiation to the offsite population?

6       A     Yes, that is correct. Based on the accident  
7 condition if there was no release but projected potential  
8 there, that is available to the utility to implement protec-  
9 tive actions.

10       Q     Isn't it true that the principal purpose of the  
11 evacuation time study done by Wilbur Smith is to provide  
12 information to the applicant, state and local officials to  
13 help them to assess appropriate protective actions to be  
14 initiated in the event of an emergency to protect the  
15 public? Is that correct?

16       A     That is one consideration or one use of that  
17 study, yes.

18       Q     What other use did you have in mind when the study  
19 was commissioned?

20       A     Well, as I pointed out earlier in a previous  
21 question of the concern for the public, the disadvantaged of  
22 additional transportation also for coming up with additional  
23 or specified evacuation routes within the ten-mile area was  
24 of some concern in identification to the general public.  
25 These are just a few f some of the information obtained.

1 MR. GOLDBERG: Okay, thank you, Mr. Beale.

2 CHAIRMAN GROSSMAN: Mr. Wilson?

3 BY MR. WILSON:

4 Q Mr. Beale, a minute ago we were talking about the  
5 sirens that the company has installed or is in the process  
6 of installing around the country, and I noted in your pre-  
7 filed testimony you referenced the use of county -- the  
8 county siren system as a backup. But you did not indicate  
9 in your discussion with Mr. Burseley whether or not those are  
10 also electrically powered.

11 A I think in my response I indicated that utilizing  
12 emergency vehicle sirens and additional siren capabilities  
13 such as helicopters which are available to the state.

14 Q Yes, but are there any stationary county sirens  
15 which you are expecting to use?

16 A Yes. At present, we are planning on utilizing  
17 four existing sirens which are all in Newberry County.

18 Q And are they similarly powered through electrical  
19 lines as opposed to battery or some generator operated?

20 A Correct.

21 Q Okay. Also in your testimony, Mr. Beale, on page  
22 10 you were discussing dedicated lines, communication lines,  
23 to the various county offices, and I note in here there is  
24 no reference to the state agency and in particular, the  
25 Department of Health and Environmental Control. Can you

1 tell us whether or not there are dedicated phone lines to  
2 DHEC?

3 A There are.

4 Q Are there any others that you have to state  
5 agencies?

6 A Yes. We have dedicated telephones to not only  
7 Bureau of Rad Health in Columbia on Bowl Street, but we also  
8 have to the Emergency Preparedness Division, with the  
9 Adjutant General at the Rutledge Building. We also have the  
10 capability of a dedicated line to the Forward Emergency  
11 Operations Center, which is in Winsboro Armory of the  
12 National Guard.

13 MR. WILSON: Mr. Chairman, by way of  
14 clarification, I should note the question to which Mr  
15 Beale's pre-filed testimony was responding referred only to  
16 local emergency organizations emergency preparedness  
17 officials, so he would not have been responding to the  
18 others.

19 BY MR. WILSON (Resuming):

20 Q Mr. Beale, are you familiar with the offsite  
21 facilities that are involved in the ten-mile planning area,  
22 such as bridges and other public facilities like that?

23 A Somewhat familiar, yes.

24 Q Do you know whether or not any of those are  
25 qualified seismically to a level that compares with the



1 plant or anywhere in the neighborhood of the plant's ability  
2 to withstand an earthquake?

3 A Not to my knowledge. You know, they are fairly --  
4 I am no seismologist or whatever, but none that I know of.

5 Q Are any of these bridges or other such structures,  
6 to your knowledge, critical to the evacuation routes?

7 A I would not say that they are critical. I would  
8 say that they are on certain routes that would be utilized  
9 for potential evacuation. But there are, as I have  
10 investigated, alternative routes that can be utilized by the  
11 public to evacuate the area. And if they are not available,  
12 there are other means such as air transport if it really  
13 gets into it, to mobilize the public.

14 Q It is my understanding that out in the  
15 neighborhood of the plant now there are currently some  
16 evacuation route signs up, is that right?

17 A That is correct.

18 Q Are those permanent or temporary?

19 A They will be permanent.

20 Q All right, sir. And finally, Mr. Beale, I would  
21 just like to know, is there any company health physics  
22 response offsite which is expected before, say, the Depart-  
23 ment of Health and Environmental Control's personnel arrive  
24 during an emergency?

25 A Yes, sir.

1 Q And what is the extent of that response?

2 A Well, it would depend a lot on the emergency  
3 condition. I will start off by saying that from a minimum  
4 to the point that we would send an offsite team of health  
5 physics personnel from the station to do monitoring of the  
6 environment, all the way to escalation of utilizing our  
7 environmental monitoring personnel who are not associated  
8 with the plant, that would come in and utilize their  
9 services for additional support during an emergency.

10 MR. WILSON: I believe that is all I have, Mr.  
11 Chairman, thank you.

12 BOARD EXAMINATION (Resumed)

13 BY CHAIRMAN GROSSMAN:

14 Q Mr. Beale, was there any point in time in which  
15 the company was considering a core melt accident with a  
16 large release of radioactivity in its emergency planning?

17 A Yes, sir.

18 Q When was that?

19 A That was shortly after the draft environmental  
20 statement came out.

21 Q And what instigated the company's consideration of  
22 that type of accident in the emergency plan? Was it the  
23 formulation of the draft environment statement?

24 A No, I just think from a standpoint of -- it really  
25 initiated from the standpoint of the ACRS hearings and from

1 that, an investigation into assuring that the emergency plan  
2 did address the concerns that were pointed out in the draft  
3 environmental statement.

4 Q Was there a point in time at which the company  
5 decided not to include the possibility of a core melt and  
6 large release of radioactivity in its emergency plans?

7 A Not that I am aware of.

8 Q Did you consult with the staff, the NRC staff, at  
9 the time you were -- all during the time that you were  
10 formulating emergency planning?

11 A I would not say all of the time, but we had  
12 naturally questions. Once again, in getting back to my  
13 previous answer on the guidance of 0654, it has been my  
14 interpretation all along that fulfilling the planning for  
15 that guideline would cover the core melt type situations.

16 Q Core melt with a large release of radioactivity?

17 A Yes.

18 Q Have you consulted with the staff with regard to  
19 that particular point?

20 A Not specifically, no.

21 (Board conferring.)

22 BY MR. LINENBERGER:

23 Q Mr. Beale, at page 5 of your pre-filed testimony,  
24 you talk about accommodations for plant workers who may have  
25 become injured, contaminated and/or radiation over-exposed.

1 Pardon me. You indicate that there are two hospital  
2 facilities; Richland Memorial Hospital and a backup facility  
3 at Oak Ridge that could take care of these plant workers.  
4 Now, do you happen to know what is the number of workers  
5 that can be accomodated at Richland Memorial, that have been  
6 so exposed or contaminated?

7 A Are you talking about at any one time?

8 Q At any one time, yes, sir.

9 A I think the number, from my recollection and  
10 discussion with Richland, is four.

11 Q And what about at Oak Ridge?

12 A From once again, recollection of being there, I  
13 think it is about six; four to six, somewhere in that  
14 ballpark.

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1 Q Okay. So there are ten people that can be taken  
2 care of. You indicated that Applicant, in response to a  
3 question by Judge Grossman, that Applicant's emergency  
4 planning does consider the possibility of a core melt with a  
5 large release of radioactivity. And if it does consider it,  
6 I can well consider that there might be more than ten people  
7 that would need the services of these hospitals. And in  
8 fact I can conceive, without too much imagination, that some  
9 of these people might be non-plant workers, but outside the  
10 exclusion radius, needing this kind of service.

11 Q Now, how -- how does Applicant consider that these  
12 people are going to be accommodated if there is capacity for  
13 ten people between the two hospitals that you are arranging  
14 to make use of?

15 A Well, I think just to clarify that when I talked  
16 about at Richland Memorial, that was primarily geared to the  
17 fact of contaminated individuals.

18 Q I am including contaminated individuals. I think  
19 with a large release of radioactivity following a core melt  
20 there might well be more than ten and a number of them may  
21 well not be plant workers, but people outside the exclusion  
22 radius.

23 A Well, what I was trying to get to, from the  
24 standpoint of a normal procedure of evacuation, if there  
25 were people that were, let's say contaminated, the

1 decontamination process at the reception center would  
2 possible clear up some of those people that are  
3 contaminated. Now, if you are talking of a large number of  
4 people that are contaminated and injured type situation --

5 Q And over-exposed.

6 A Over-exposed, okay. There are other hospitals  
7 that are available within the area for use by the counties.  
8 I am aware of -- well, Richland Memorial is one of them.  
9 But also there are two other hospitals -- well, several  
10 other hospitals within the Columbia area that would be  
11 utilized from the standpoint of handling these type of  
12 patients.

13 Plus the fact that in the case of a severity of an  
14 accident of the magnitude that you have just discussed, my  
15 feeling would be that available resources outside of the  
16 state and federal level could be used to the degree that we  
17 could, you know, utilize their services for handling these  
18 additional patients.

19 Q Well, sir, now when you say severity of accident  
20 that I just discussed, I was just carrying forward from your  
21 answer to Judge Grossman. So I think you picked that  
22 severity.

23 But you say there are several hospitals in the  
24 area that can be utilized. Now, it is my impression that  
25 not very many hospitals know how to cope with contaminated

1 and overexposed people. So just the existence of hospitals  
2 around I would think is not good enough.

3           Now, to what extent has Applicant taken this into  
4 consideration and made arrangements with these other  
5 hospitals you have talked about or made any specific  
6 arrangements to accommodate this kind of a contingency?

7           A     The only arrangement that the SCE&G has undertaken  
8 is strictly for the workers at the plant. Getting into the  
9 area of the general public, that has been under the control  
10 of the counties.

11          Q     To what extent is Applicant aware that any county  
12 agencies have done anything in this regard?

13          A     It is my understanding that each of the counties  
14 have identified by agreement certain hospitals that are  
15 available to them for use in case of an emergency at the  
16 Summer station. Now, to the degree of these hospitals  
17 utilizing a large number of patients, I cannot address that,  
18 from the standpoint of what hospitals and to the degree that  
19 these hospitals have agreed to the counties.

20                   (Board conferring.)

21           CHAIRMAN GROSSMAN: I just want to point out now  
22 for the record that we are not going to consider this  
23 particular testimony as something we could base findings on  
24 saying that the Applicant has taken into account a core melt  
25 with large release of radioactivity in its emergency plans.

1 I just want to point that out for fairness now to Mr.  
2 Bursey.

3           There were a few exploratory questions from the  
4 Board, but we have ruled out that area and have precluded  
5 Mr. Bursey from pursuing it. And I just want to make sure  
6 that no one believes that we can use these last few answers  
7 to establish or support findings in that direction, when we  
8 have precluded him from presenting a case in that area.

9           Mr. Goldberg?

10           MR. GOLDBERG: Well, you know, every time the  
11 matter comes up it seems to get fuzzier rather than  
12 clearer. I hate to rely on my recollection at this hour of  
13 where the matter is. You know, the matter arose in  
14 connection with some proffered testimony describing some  
15 hypothetical class 9 accident which bore no site-specific or  
16 plant-specific characteristic and for which no special  
17 circumstances have been shown to adjudicate.

18           Now -- and clearly, in the context of the  
19 testimony in which it was proffered, that testimony  
20 constituted a challenge to the Commission's emergency  
21 planning requirements insofar as they established 10 and  
22 50-mile emergency planning zones.

23           Now, it was also indicated that NUREG-0654 makes  
24 it clear that one of the underpinnings of the Commission's  
25 emergency planning regulations is consideration given to a



1 number of core melt accident release categories, such as  
2 those contained in the reactor safety study. Now, I frankly  
3 have no litigative interest in whether Mr. Beale's testimony  
4 on that matter remains or not. But I do not necessarily see  
5 his testimony as being inconsistent with the requirements of  
6 the regulation to the extent that he is saying that he  
7 considered core melt accident releases fitting the  
8 categories of the reactor safety study, which is implicit in  
9 the Commission's emergency planning requirements.

10 But again, I am not --

11 CHAIRMAN GROSSMAN: I have no problem with Mr.  
12 Beale's testimony that he considered that those matters fall  
13 under that particular guide. That is fine. I believe, Mr.  
14 Goldberg, you differed with him in that respect. But I do  
15 not see anything objectionable about having his testimony in  
16 about what his opinion is of that.

17 My point is that I held off asking him questions  
18 as to whether the company took those matters into account  
19 and how they did in the emergency plans themselves, because  
20 that is the area that you objected to and which we excluded.

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1           MR. GOLDBERG: Well, I objected -- I objected to  
2 the exclusion of specific testimony on specific grounds.  
3 Now, you know, the Board might have ruled on -- you know,  
4 might have had its grounds for ruling, but I think there  
5 were a variety of objections lodged to that specific  
6 testimony.

7           CHAIRMAN GROSSMAN: And the Board ruled out all  
8 those objections except for one.

9           MR. GOLDBERG: Well, as I say, I do not have a  
10 litigative interest in this particular piece of testimony,  
11 but I just do not necessarily see it as inconsistent with  
12 the staff position on, you know, the specific matters that  
13 were the subject of our legal argument.

14          CHAIRMAN GROSSMAN: Mr. Knotts?

15          MR. KNOTTS: I just want to very quickly add that  
16 the -- my understanding of Dr. Kaku's testimony is my  
17 starting point would have been it was outside the contention  
18 to begin with, and, secondly, that it was not a prima facie  
19 showing of a specific, credible accident scenario that could  
20 lead to a larger release than contemplated by the  
21 Commission's regulations.

22           I think the Board's grounds may have been stated  
23 somewhat differently or may not have been those grounds at  
24 all. I would have to go look at the transcript. But those  
25 were the grounds we relied on in objecting to Dr. Kaku, and

1 we have not objected to the interrogation either by Mr.  
2 Bursey or the Board of Mr. Beale.

3           CHAIRMAN GROSSMAN: Well, I am not excluding  
4 anything from the record now that was stated. I am merely  
5 saying that I do not see that we can preclude Mr. Bursey  
6 from inquiring into the emergency plans taking into account  
7 a large core melt -- I am sorry, a core melt with a large  
8 release of radioactivity and then go ahead and accept some  
9 testimony to the effect that the company did take into  
10 account a core melt and large release of radioactivity for  
11 the purpose of finding, and that that was taken into account  
12 in the emergency plan.

13           Do you follow what I am saying?

14           MR. KNOTTS: I think I do, Judge, but I think the  
15 distinction we are failing to draw is between the  
16 Commission's convention of making a non-mechanistic  
17 assumption of the large core melt accident for purposes of  
18 emergency planning, for purposes of Part 100 and for a lot  
19 of other purposes and making a requirement that if you are  
20 going to challenge an accident scenario, a design basis  
21 accident scenario or you are going to say that it is larger  
22 than the assumption the Commission has made, which is  
23 non-mechanistic. If you are going to make a larger  
24 assumption you are going to have to come up with a  
25 plant-specific scenario.

1           And Dr. Kaku's testimony on its face did not do  
2 that.

3           CHAIRMAN GROSSMAN: Mr. Bursey?

4           MR. BURSEY: If I may respond to that, sir, Dr.  
5 Kaku's testimony did indeed postulate, and forgive me for  
6 using Class 8 and Class 9 designations, and I hope that Mr.  
7 Goldberg will let me use those just for the sake of  
8 classifying Dr. Kaku's testimony, in that he did speak to a  
9 Class 8 moving into a Class 9 due to welding deficiencies,  
10 as postulated by my QC witnesses.

11           It was that specific at least. And I continue to  
12 perceive the legitimacy of the discussions within the  
13 ten-mile zone as to what needs to be done to mitigate and  
14 deal with the effects of a core melt within that area. But  
15 I wanted to bring out to the Board that the testimony of  
16 Kaku did indeed specify an 8 moving to a 9 due to  
17 deficiencies in safety-related welds, as pointed out by my  
18 QC witnesses.

19           CHAIRMAN GROSSMAN: Did anyone want to further  
20 comment on the discussion now?

21           MR. BURSEY: Well, sir, in regards to the  
22 questions that Judge Linenberger brought up about the  
23 Richland Memorial Hospital, I wanted to --

24           CHAIRMAN GROSSMAN: I will allow you further. I  
25 want to find out if there are any further comments on the

1 arguments now and then you will have a chance to recross Mr.  
2 Bursey, or were these comments directed toward the Board?

3 MR. BURSEY: Sir, I am not sure what the argument  
4 at hand is. I will just wait until it comes back around to  
5 redirect for Mr. Beale.

6 MR. KNOTTS: I am not sure that there is an  
7 argument at the moment. The Board has served notice on us  
8 as to what it plans to do and we are on notice.

9 CHAIRMAN GROSSMAN: That is fine.

10 MR. KNOTTS: We stated our positions. We might  
11 just as well go forward.

12 CHAIRMAN GROSSMAN: That is fine. I am satisfied.

13 Mr. Knotts we will put the ball back in your court  
14 now for redirect.

15 MR. KNOTTS: Very well, sir.

16 Would it be agreeable if I put Mr. Baehr back up  
17 on the stand because some of the questions Mr. Beale was  
18 asked he may want to refer to Mr. Baehr.

19 CHAIRMAN GROSSMAN: Any objections?

20 (No response.)

21 None, please have a seat at the witness table  
22 again.

23 Whereupon,

24

WILLIAM H. BAEHR,

25 was recalled as a witness and, having been previously duly

1 sworn by the Chairman, was further examined and testified as  
2 follow:

3 REDIRECT EXAMINATION - Resumed

4 BY MR. KNOTTS:

5 Q Mr. Beale, I am going to see if you can recall  
6 quite some time ago you were discussing with Mr. Bursey that  
7 sector adjacent to the Greenbriar and Kelly Norris schools.  
8 Do you mean that sector within the emergency planning zone  
9 that is adjacent to these schools?

10 A (WITNESS BEALE) Yes, I am talking about, I think  
11 it is -- I am not real sure. It is either a B-2 or C-2, one  
12 of those sectors.

13 Q Right. Is it possible that the requirement for the  
14 installation of the sirens would be by October of this year,  
15 if that were -- if there were to be fuel in the reactor by  
16 that time or prior to fuel load, if fuel loading were to be  
17 later?

18 A (WITNESS BEALE) It is my understanding that the  
19 sirens would be installed and operable prior to fuel loading.

20 Q Okay. There was some discussion of the accident,  
21 the liquid pathway release scenario, and the recent exercise  
22 of May 1. And I wondered if you or Mr. Baehr could comment  
23 on whether or not that release would be expected to be  
24 terminated. Would such a release in real life be expected  
25 to be terminated at some point and, if so, when?

1           A       (WITNESS BAEHR) Yes. As soon as the radiation  
2 monitor, either one of the two on that line, exceeded a  
3 preset value, which is presented in our off-site dose  
4 calculation methodology, then there would be an automatic  
5 termination of pumping which would prevent the release from  
6 occurring.

7           Q       Are there any valves in the line, Mr. Baehr?

8           A       (WITNESS BAEHR) Yes, there are.

9           Q       More than one?

10          A       (WITNESS BAEHR) Yes, there are. In fact, the  
11 system is valved such that releases to the pen stacks cannot  
12 be made unless Fairfield Pump Storage Facility is in the  
13 generating mode at forty percent of flow in any given pen  
14 stack.

15          Q       There was some discussion also about levels at  
16 which the utility might make recommendations to the state or  
17 whoever the appropriate officials are regarding protective  
18 action for varied cattle and the like. Do either of you  
19 have any role in those recommendations?

20          A       (WITNESS BAEHR) I do.

21          Q       And what is that role, Mr. Baehr?

22          A       (WITNESS BAEHR) I am the off-site emergency  
23 monitoring coordinator for the emergency plan.

24          Q       I see. And how would you get the information on  
25 which to base recommendations?

1           A       (WITNESS BAEHR) Physically sending monitoring  
2 teams into the site, acquiring the sample and either in situ  
3 analyzing the sample or bringing the sample back into the  
4 laboratory for analysis.

5           Q       When you say into the site, sir, where might that  
6 site be?

7           A       (WITNESS BAEHR) In situ refers at the point of  
8 sampling.

9           Q       All right. Where might that be?

10          A       (WITNESS BAEHR) Any place in the state, any place  
11 I would care to send my guys romping.

12          Q       So it could be as far as -- as far as you have a  
13 concern about the need to monitor?

14          A       (WITNESS BAEHR) That is correct.

15          Q       Mr. Beale, would you refer to page 16 of your  
16 prepared testimony? In the three lines at the bottom of the  
17 page on page 16 the protective actions involving the proper  
18 feeding and care of milk-producing animals, does that have  
19 anything to do with what Colonel DeLoacht testified, I  
20 think, about reentry into the emergency planning zone by  
21 people who had been evacuated?

22          A       (WITNESS BEALE) No. It is just part of the  
23 protective action guides that are adopted in our plan and in  
24 the state plan, that at certain levels of exposure you would  
25 institute proper feeding and caring of milk-producing



1 animals.

2 Q Oh, I see. I am not sure I understood correctly.  
3 Did you -- let's see. The term volunteer in connection with  
4 the sirens came up and I am not quite sure what you said  
5 exactly, Mr. Beale. I wonder if you could clarify that for  
6 me and let me try to frame a specific question.

7 Is it correct that the company is installing the  
8 siren system?

9 A (WITNESS BEALE) The company has contracted an  
10 outfit to install the sirens.

11 Q By which I mean is the company paying for the  
12 siren system?

13 A (WITNESS BEALE) Correct.

14 Q Now the siren system is, as I understand it, a  
15 local county responsibility, is that correct?

16 A (WITNESS BEALE) Correct. That is my  
17 understanding.

18 Q And the county will in fact direct the utility  
19 whether or not to actuate the siren?

20 A (WITNESS BEALE) Correct.

21 Q The utility will make recommendations to the  
22 county on which a direction will be based or will be  
23 considered in that direction?

24 A (WITNESS BEALE) Correct.

25 Q Thank you.

1 (Pause.)

2 You made some reference to a criticism regarding  
3 minor communications problems, Mr. Beale. Could you  
4 elaborate on what those minor communications problems were?  
5 This was in the context of the May 1 exercise.

6 Q (WITNESS BEALE) All right. What I was referring  
7 to was we did have a couple of minor problems with  
8 telephones within our emergency operations facility and the  
9 tech support center during the exercise, but they were  
10 quickly remedied and eliminated.

11 Q I see.

12 (Counsel for Applicant conferring.)

13 Q In connection with this whole business of core  
14 melt accidents and large releases, did you do anything  
15 different, Mr. Beale, from what is contemplated by  
16 NUREG-0654 to the best of your knowledge?

17 A (WITNESS BEALE) No, I did not.

18 Q Thank you.

19 (Counsel for Applicant conferring.)

20 Q Mr. Beale, you testified that, I think it is,  
21 Richland Memorial Hospital could handle about four people at  
22 a time at any one point in time.

23 A (WITNESS BEALE) Correct.

24 Q Do you recall the affidavit which has not been  
25 received in evidence, but the affidavit of Dale Kampel and

1 Judy Cotchett or Cotchett -- that is, C-o-t-c-h-e-t-t --  
2 regarding emergency planning that was submitted by Mr.  
3 Bursey prior to the hearing?

4 A (WITNESS BEALE) I have looked over that, yes.

5 Q Do you recall the statement in that affidavit  
6 which is attributed to Dale Kampel, that the radiation  
7 emergency area in the emergency room has four treatment  
8 areas. Actually, in terms of space, we could handle more  
9 than that -- more than four people?

10 A (WITNESS BEALE) That is correct, but what I was  
11 alluding to was there are four rooms for four patients that  
12 they have indicated to us.

13 Q I see. And after people who are injured are  
14 decontaminated can they be moved to other rooms?

15 A (WITNESS BEALE) Absolutely. That is the plan  
16 that Richland Memorial has.

17 Q So in effect you would be rotating people through  
18 these four rooms if you needed to?

19 A (WITNESS BEALE) Absolutely.

20 MR. KNOTTS: Thank you sir. Nothing further at  
21 this time.

22 CHAIRMAN GROSSMAN: Mr. Bursey?

23 RE-CROSS EXAMINATION - Resumed

24 BY MR. BURSEY:

25 Q In reference to that testimony of Mr. Kampel that

1 Mr. Knotts just cited, do you recall if Mr. Kampel stated or  
2 it is a matter of Richland Memorial Hospital policy that the  
3 hospital only takes injured people? Isn't that right, sir,  
4 as separate from contaminated people? People need to have  
5 some type of traumatic injury?

6 A (WITNESS BEALE) Well, the agreement that we have  
7 with Richland Memorial is if an individual is overexposed  
8 they will receive that patient.

9 Q I believe that is for your workers.

10 A (WITNESS BEALE) Yes.

11 Q Now, Mr. Kampel states we are dealing only with  
12 injury. We would not accept someone in the hospital for the  
13 sole purpose of decontamination.

14 A (WITNESS BEALE) That is correct. In other words,  
15 if a worker is in need of decontamination that would be  
16 handled at the facility.

17 Q And if there were an instance Judge Linenberger  
18 were postulating where there might be a large number of  
19 people that were exposed then they certainly could not count  
20 on Richland Memorial for decontamination.

21 A (WITNESS BEALE) You combine exposure with  
22 decontamination. From a decontamination standpoint that is  
23 correct, that they could not.

24 Q And what would they do?

25 A (WITNESS BEALE) I do not understand your question.

1 Q What would the civilian -- large number of  
2 civilian populus do were they exposed and could not go to  
3 Richland Memorial?

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1           A       (WITNESS BEALE) Well, as far as the exposure end  
2 of it, strictly exposure, there are hospitals available  
3 other than Richland County -- Richland Memorial, that in my  
4 opinion could handle those type of -- I hate to call them  
5 patients, but let's call them patients. For decontamination  
6 purposes, the public would generally go and have that done  
7 or handled at the reception centers.

8           Q       Now, did I understand you to say that the  
9 Applicant has considered a core melt accident and its  
10 ensuing problems from the time of its construction license?  
11 I mean, this has been something that they have always  
12 considered?

13          A       (WITNESS BEALE) The only thing that I am aware of  
14 is that in the initial emergency planning that I was  
15 involved with we did consider in the planning different  
16 situations that would initiate the emergency plan that  
17 involved a loss of coolant type of accident.

18          Q       And let me see, that was -- would have been since  
19 1976?

20          A       (WITNESS BEALE) Correct.

21          Q       And your statement is that there is essentially no  
22 difference in the plan with our without the core melt  
23 consideration?

24          A       (WITNESS BEALE) Could you repeat your question?

25          Q       I believe you stated that there is essentially no

1 difference in your emergency plans with or without the core  
2 melt considerations?

3       A       (WITNESS BEALE) It is my understanding that the  
4 emergency plan, the way we have developed it, will cover any  
5 emergency condition, a core melt or a loss of coolant type  
6 accident to a fire to any type of an emergency.

7       Q       But the mechanism in place would be applicable and  
8 the only variable would be perhaps in the numbers of people  
9 affected and the degree to which they may be affected, is  
10 that right?

11       A       (WITNESS BEALE) Repeat the question.

12       Q       That in regards to the inclusion of the core melt  
13 in your plans, what I am saying is that the variable that  
14 you are saying your plan takes into account is simply  
15 numbers and degrees. You are saying that the mechanical  
16 aspect of your plan --

17               CHAIRMAN GROSSMAN: Mr. Bursey, could you phrase  
18 it as a question and maybe you will get an answer.

19               BY MR. BURSEY: (Resuming)

20       Q       Are you saying that the mechanical aspect of your  
21 plan is functional regardless of a core melt or not, in that  
22 mechanically the only variable between a core melt and a  
23 TWR-3 would be the degree of radiation released and the  
24 numbers of people affected?

25       A       (WITNESS BEALE) It is my belief and understanding

1 that the emergency plan developed would cover those  
2 conditions that had been outlined in NUREG-0654, that  
3 include a loss of coolant type of accident, to implement  
4 actions by the utility to take actions to mitigate the  
5 accident and to take appropriate protective actions for the  
6 protection of the general public.

7 Q So that the difficulties that might arise from the  
8 core melt in regards to say several thousand fatalities and  
9 scores of thousands of latent cancers would essentially be  
10 the problems of the state and local governments, that you  
11 feel they are adequately prepared to deal with?

12 A (WITNESS BEALE) Well, I do not agree with your  
13 statement, but as far as to the degree of the state and  
14 local county plans, it is my belief that their plans meet  
15 the criteria that are outlined in 0654 that addresses the  
16 loss of coolant type accident if it would take place at the  
17 V.C. Summer station.

18 Q Did you have a specific loss of coolant accident  
19 scenario in mind when you designed that? You are saying you  
20 included one. What scenario did you include?

21 A (WITNESS BEALE) From the standpoint of the basis  
22 for 0654, which came about through the NUREG -- I am not  
23 sure of the number -- 0364 -- 0396, I think it was. And  
24 that is the basis or the scenario that was utilized for the  
25 development of our plan.



1 Q And that scenario postulated a specific release of  
2 a certain amount of radioisotopes over a given period of  
3 time?

4 A (WITNESS BEALE) That is my understanding, yes.

5 Q Can you contribute anything, sir, to the  
6 clarification of the scenario that you used in the inclusion  
7 of core melt scenarios in your emergency plan?

8 A (WITNESS BAEHR) Only to the extent that  
9 additional plans over and above those that have been  
10 discussed in this hearing so far do exist. I am not an  
11 expert in them. I do know that there are national plans  
12 between federal agencies, agreements which are designed to  
13 mitigate the consequences of severe radiological hazards.

14 Q I am not sure that was the question. The question  
15 was more specifically that Mr. Beale said that the plant's  
16 emergency plan took into account a core melt scenario, and  
17 Mr. Beale referred to a core melt scenario that I am not  
18 familiar with. And I was asking if you can enlighten me as  
19 to that specific scenario that your plan considered?

20 A (WITNESS BAEHR) You are talking about as of  
21 1976. I cannot at that time, no.

22 MR. FURSEY: That is all I have, sir.

23 CHAIRMAN GROSSMAN: As of now, can you?

24 WITNESS BAEHR: Based on the Commission's  
25 regulations, NUREG-0654, I believe I can, sir.

1 CHAIRMAN GROSSMAN: Well, what is that scenario?

2 WITNESS BAEHR: That scenario is essentially  
3 those scenarios placed forth in the reactor safety study,  
4 WASH-1400.

5 MR. BURSEY: Then if I could pursue it --

6 CHAIRMAN GROSSMAN: You certainly can.

7 BY MR. BURSEY: (Resuming)

8 Q If you took WASH-1400, is that the one that you  
9 were referring to, Mr. Beale?

10 A (WITNESS BEALE) I think that is the -- My  
11 understanding of that is that it is what is identified as  
12 far as the NUREG-0396.

13 Q And that is the reactor safety study or otherwise  
14 known as the Rasmussen Study?

15 A (WITNESS BEALE) Correct.

16 Q And in your emergency planning and taking that  
17 into consideration, the core melt accident, given the  
18 site-specific considerations of your facility, what were  
19 your discussions with the local and state people in terms of  
20 the maximum impact that they could anticipate on the local  
21 population from such an accident?

22 A (WITNESS BEALE) In specifics, we once again,  
23 based on 0654 and the guidelines that are presented in that,  
24 in meeting those scenarios that you have just discussed it  
25 has been my position that with the state and locals meeting

1 those guidelines, that they do meet the type of situation  
2 such as the populace that would be involved in this type of  
3 an emergency.

4 Q Did you yourself have discussions with any of the  
5 state and local officials about the ramifications of the  
6 type of accident that Mr. Baehr just referred to?

7 A (WITNESS BEALE) We did not go into any specific  
8 details of the accident, because we were concerned about  
9 preparation and preparedness for identifying certain aspects  
10 of handling evacuation or that aspect in meeting the  
11 requirements -- or not requirements, but the guidelines of  
12 0654.

13 Q Well, sir, as an emergency planner, I'm sure you  
14 can appreciate the concerns I voiced all along that it is  
15 impossible to plan for an emergency that you do not  
16 understand the parameters of. Would you agree with that?

17 A (WITNESS BEALE) Well, I do not agree that we do  
18 not understand the parameters. I feel that from the  
19 magnitude of the accidents or the conditions displayed in  
20 0654 that the local and state agencies do understand.

21 Q Well, sir, if you were here during their  
22 testimony, none of them evidenced any understanding  
23 whatsoever of the RSS, WASH-1400, or the Rasmussen study,  
24 except finally Hayward Shealey.

25 A (WITNESS BEALE) But the point I'm trying to make

1 is that they do understand the guidelines of 0654. Now, if  
2 you are saying specifically, do they understand the  
3 WASH-1400 report, I cannot answer that. But I do know that  
4 they understand the guidelines of 0654 and what is  
5 implemented there in response of their agencies.

6 Q Can you tell me, has the company made a specific  
7 assessment of the impacts, given a site-specific analysis of  
8 the type of accident postulated in the RSS?

9 A (WITNESS BAEHR) May I answer that?

10 Q Sure.

11 A (WITNESS BAEHR) No.

12 Q Well, is my concern misplaced that the state and  
13 local emergency people do not know whether to expect four  
14 people irradiated, as in Mr. Campbell's statement, or 400  
15 people or 4,000 people? Is that a misplaced concern?

16 A (WITNESS BEALE) No. I just feel like the locals  
17 and the state do not anticipate large numbers of, as you  
18 indicated, casualties or patients at, say, Richland Memorial  
19 Hospital. And therefore the planning that they involve was  
20 primarily geared to that level.

21 But it is my feeling in discussion with the locals  
22 and the state that if they have to expand on that that they  
23 could call upon resources either through the state or  
24 through the federal to assist in that area.

25 MR. BURSEY: I see. Thank you, sir. That wraps

1 it up for me.

2 CHAIRMAN GROSSMAN: Mr. Beale, were you in the  
3 courtroom when the state and local people testified?

4 WITNESS BEALE: Yes, sir.

5 CHAIRMAN GROSSMAN: Did you hear testimony to the  
6 effect that the probability of a large release of  
7 radioactivity because of a core melt was so improbable that  
8 the people did not have to take that into account? Do you  
9 recall any testimony like that?

10 WITNESS BEALE: Well, I remember some discussion  
11 about probability. As far as that specific, nothing comes  
12 to mind on that specific statement.

13 CHAIRMAN GROSSMAN: Did the company take any  
14 affirmative steps to disabuse the state and local officials  
15 of that type of thinking with regard to a large release of  
16 radioactivity?

17 MR. GOLDBERG: Judge, I do not -- I hesitate to  
18 interrupt, but I am not sure that this witness has offered  
19 an opinion about the probability of some unspecified range  
20 of core melt accidents. I think that the --

21 CHAIRMAN GROSSMAN: Well, let me clarify that  
22 question. Not to disabuse them of the fact that the  
23 probability may be low, but the fact that they do not have  
24 to take that into account as a type of scenario that might  
25 happen. Did the company take any steps in that direction?

1           WITNESS BEALE: I would not say that we went out  
2 of our way to take steps to inform -- at least I did not --  
3 inform the public, the local or the state agencies. Once  
4 again, in discussions that I have had with state and local  
5 governments as far as the guidelines of 0654 and the degree  
6 -- the type of accidents geared to NUREG-0396, there was  
7 some discussions on that magnitude, but not specifically  
8 into probabilities of certain accidents of that degree.

9           CHAIRMAN GROSSMAN: Mr. Goldberg, I do not object  
10 to your objecting to Board questions. So you can state that  
11 you object and tell me why you object.

12           MR. KNOTTS: It is not easy, Judge. It is not  
13 easy.

14           (Laughter.)

15           MR. GOLDBERG: It is not easy. I just think, you  
16 know, we did have two days of testimony and all of these  
17 matters I think at one point were discussed. And my  
18 recollection is that the responsible state officials used  
19 NUREG-0654 as a planning basis in the development of their  
20 emergency plans. And I am really not sure that it is the  
21 company's responsibility to educate those officials on the  
22 development of those plans consistent with the Commission's  
23 requirements.

24           CHAIRMAN GROSSMAN: Mr. Goldberg, I did not tell  
25 Mr. Beale that it was the company's responsibility. I asked

1 him whether he had taken any steps in that direction. That  
2 is your second point.

3           And your first point is that my recollection is  
4 faulty, that the state and local people did not say that.  
5 Well, I think the transcript will show what they said. But  
6 I do not believe my recollection is that faulty.

7           MR. GOLDBERG: I am not saying it is faulty. I do  
8 think the transcript, as they say, will speak for itself.

9           CHAIRMAN GROSSMAN: Mr. Knotts, did you also have  
10 something?

11           MR. KNOTTS: I had a further question, one. Am I  
12 out of order?

13           CHAIRMAN GROSSMAN: We are not passed around to  
14 you yet.

15           Mr. Goldberg, do you have some further questions?

16           MR. GOLDBERG: I have no questions.

17           CHAIRMAN GROSSMAN: Mr. Wilson?

18           MR. WILSON: No questions.

19           CHAIRMAN GROSSMAN: Mr. Knotts, we are around to  
20 you again.

21                           FURTHER REDIRECT EXAMINATION

22           BY MR. KNOTTS:

23           Q    Mr. Baehr, a few minutes ago you talked about the  
24 Federal Government getting into a really major emergency and  
25 I wanted to ask you, recognizing what you said about that,

1 whether you know -- knew whether there were in connection  
2 with that any further backup hospitals other than Oak  
3 Ridge?

4       A       (WITNESS BAEHR) There are many fine nuclear  
5 medicine-oriented facilities in this country: such  
6 facilities as the Mayo Clinic, the Houston University  
7 Hospital school system, whatever you want to call it down  
8 there, Mount Sinai Hospital, Emory University. I am not an  
9 expert from the standpoint of all the medical institutions  
10 that are capable of handling whole body irradiations or  
11 ingestive -- ingestion problems. But there are a large  
12 number of them in this country, and surely should a disaster  
13 of this magnitude occur the Federal Government, as it did  
14 with Three Mile Island, would take appropriate action in a  
15 timely fashion.

16               MR. KNOTTS: I have nothing further.

17               (Board conferring.)

18               CHAIRMAN GROSSMAN: I hope the company is not  
19 relying upon that.

20               MR. LINENBERGER: Certainly the Board is not.

21               (Laughter.)

22               CHAIRMAN GROSSMAN: Thank you, gentlemen. The  
23 panel is excused.

24   (Witnesses excused.)

25               CHAIRMAN GROSSMAN: Mr. Goldberg, do you want a



1 short recess before you put your emergency planning panel  
2 on?

3 MR. GOLDBERG: Yes, Judge. Thank you.

4 (Recess.)

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1 MR. GROSSMAN: Mr. Goldberg, please call your  
2 witnesses.

3 MR. GOLDBERG: Yes, thank you, Judge.

4 At this time I would like to call Mr. Thomas  
5 Kevern and Mr. Jack Richardson to the stand, please.  
6 Whereupon,

7 THOMAS A. KEVERN

8 AND

9 JACK D. RICHARDSON

10 were called as witnesses by counsel for Staff and, having  
11 been duly sworn, were examined and testified as follows:

12 CHAIRMAN GROSSMAN: Please be seated.

13 Would you state your full names and spell them for  
14 the Court Reporter, please?

15 WITNESS KEVERN: Thomas A. Kevern, K-e-v-e-r-n.

16 WITNESS RICHARDSON: Jack D. Richardson,  
17 R-i-c-h-a-r-d-s-o-n.

18 DIRECT EXAMINATION

19 BY MR. GOLDBERG:

20 Q Mr. Kevern, did you prepare some prefiled  
21 testimony in this proceeding?

22 A (WITNESS KEVERN) I have.

23 Q Do you have a copy of that before you?

24 A (WITNESS KEVERN) I do.

25 Q Apart from the stricken question and answer

1 regarding former FUA Contention 10, do you have any  
2 corrections or additions you wish to make to that testimony?

3 A (WITNESS KEVERN) Yes, I do.

4 Q Could you please make those?

5 A (WITNESS KEVERN) The first page, the answer to  
6 Q-2 delete the words "performed the NRC Staff review,"  
7 insert the words "was the lead NRC Staff reviewer."

8 The second page, question 3, the fourth line down  
9 strike "(s)."

10 Page 18, the question and answer at the bottom of  
11 the page referred to FUA Contention 13. It was my  
12 understanding that that was to be deleted also.

13 MR. GOLDBERG: Yes, that is correct, Judge. Also,  
14 I will now strike that from my copy and the copy that the  
15 Reporter has.

16 WITNESS KEVERN: That is the bottom of page 18 and  
17 all of page 19 then. Also Attachment C, page 17. That is  
18 part of Contention 10. That should be deleted also.

19 Those are the contentions.

20 BY MR. GOLDBERG: (Resuming)

21 Q Is there a statement of your professional  
22 qualifications attached to the prefiled testimony?

23 A (WITNESS KEVERN) Yes, sir, there is.

24 Q Do you have any corrections you wish to make to it?

25 A (WITNESS KEVERN) I have no corrections. I can

1 expand upon my qualifications as necessary, though.

2 Q That is not necessary.

3 Are the contents of both the prefiled testimony  
4 and the statement of qualifications correct to your  
5 knowledge?

6 A (WITNESS KEVERN) They are.

7 Q Do you adopt it as your prefiled testimony and a  
8 statement of qualifications in this proceeding?

9 A (WITNESS KEVERN) I do.

10 MR. GOLDBERG: Judge, at this time I would like to  
11 move for the prefiled testimony and attached statement of  
12 qualifications of Thomas A. Kevern be received in evidence  
13 and bound into the transcript as though read.

14 CHAIRMAN GROSSMAN: Mr. Bursey.

15 MR. BURSEY: No objection.

16 CHAIRMAN GROSSMAN: Mr. Knotts.

17 MR. KNOTTS: No objection.

18 CHAIRMAN GROSSMAN: Mr. Wilson.

19 MR. WILSON: No objection.

20 CHAIRMAN GROSSMAN: Received in evidence.

21 (The material referred to follows:)

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(4)  
7/15

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE SAFETY ATOMIC AND LICENSING BOARD

In the Matter of	)	
	)	
SOUTH CAROLINA ELECTRIC & GAS	)	Docket No. 50-395
COMPANY	)	
	)	
Virgil C. Summer Nuclear Station,	)	
Unit 1	)	

TESTIMONY OF THOMAS A. KEVERN ON  
FAIRFIELD UNITED ACTION  
CONTENTIONS 7, 8, 9, 10, 11 AND 13\*

Q.1. Could you please state your name, place of employment and professional qualifications?

A. My name is Thomas A. Kevern. I am employed by the U.S. Nuclear Regulatory Commission as a nuclear engineer and emergency preparedness team leader in the Division of Emergency Preparedness, Office of Inspection and Enforcement (I&E). A copy of my professional qualifications is attached (Attachment B).

Q.2. Could you briefly describe your role with respect to the review of emergency planning for the Summer nuclear plant?

A. I ~~performed the NRC Staff review~~ <sup>was the lead NRC Staff reviewer</sup> of the applicant's emergency plans for the Summer nuclear plant as presented in the Safety Evaluation Report and supplements.

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\* See statement of these Contentions in Attachment A.

Q.3. With respect to Fairfield United Action (FUA) Contention 7, I understand that you are only offering testimony on subparts (a), (b), (c), (d), (e), (f), (g), (i), (j), (l), (m), (n), (nn), (o), (p), (r),  and (t) thereof. Is that correct?

A. Yes.

Q.4. FUA Contention 7(a) asserts that the Applicant's emergency plan does not meet the minimum staffing requirements as set forth in NUREG-0654, Rev. 1, Table B-1. Does the Staff have a position on this?

A. Table B-1 of NUREG-0654, Rev. 1 sets forth the criteria on minimum staffing requirements for both on-shift personnel and the augmentation of shift personnel. The applicant's Emergency Plan (April 1981) provides for staffing which meets the criteria pertaining to on-shift staffing, except for the absence of an on-shift Rad/Chem Technician, and provides for timely shift augmentation which meets the criteria with respect to manning. Additionally, the applicant has committed to resolving the area of staffing requirements either by complying with the specific criteria and implementation date or meeting an alternative acceptable to the Staff. The Staff, therefore, finds the applicant's proposed staffing acceptable.

Q.5. FUA Contention 7(b) asserts that the applicant's emergency plan includes agreements with local organizations which fail to delineate

the authority, responsibilities, and limits on their actions. Does the Staff have a position on this?

- A. Appendix C to the applicant's Emergency Plan includes letters of agreement with local organizations. These letters of agreement can be categorized into two groups: (1) agreements with fire, law enforcement, and medical services and (2) agreements with county governments' emergency management agencies. In the first category, each organization indicates that upon notification it will furnish support in the event of an emergency. These letters of agreement, arranged with organizations which respond to emergencies on a daily basis, document the agreement of the organizations to provide services to the applicant and thus provide reasonable assurance that emergency services would be provided in the event of an emergency in which assistance is required. These letters would be improved if expanded to include the specific equipment and personnel to be provided. However, the services to be provided by these organizations are those which are performed routinely by the organizations. To ensure these organizations are familiar with special problems associated with the applicant's facility, the applicant is required to conduct training for the personnel of these organizations and to hold periodic drills and exercises involving these organizations. The second category of letters involves agreements reached with emergency management agencies for those counties in the plume exposure EPZ. Since each county has developed its own emergency preparedness plans designed to respond to a radiological emergency, which provide detailed descriptions of such

a response, detailed letters of agreement are not required. In fact, the county emergency management agencies are legally recognized agencies responsible to direct and perform emergency services, and, as such, letters of agreement are not required under the new emergency planning rule or the criteria in NUREG-0654.

- Q.6. FUA Contention 7(c) asserts that the applicant has failed to demonstrate the ability to notify local emergency preparedness officials within 15 minutes. Does the Staff have a position on this?
- A. The criteria of NUREG-0654 specify that prompt notification of offsite authorities is to be initiated within about 15 minutes for the unusual event class and sooner (consistent with the need for other emergency actions) for other classes. The applicant has 24 hour-per-day communication capability with the State and counties of Fairfield, Lexington, Newberry, and Richland. Offsite authorities must be prepared to alert the public within about 15 minutes of notification from the plants. The applicant is required to demonstrate the ability to meet the notification criteria by means of communication drills and/or emergency preparedness exercises. The applicant performed their function satisfactorily in the May 1, 1981 joint exercise. The capability of offsite authorities to take timely actions was considered by FEMA in its evaluation of the joint exercise.



Q7. FUA Contention 7(d) asserts that the applicant has not adequately planned for the distribution of informational materials. Does the Staff have a position on this?

A. The applicant has provided an emergency information brochure to the residents within the plume exposure emergency planning zone by means of bulkmailing through local post offices. Additionally, the applicant has committed to providing this information in local business establishments, e.g., motels, gas stations, and restaurants, and to posting emergency information/instructions signs at recreation areas. The applicant's Emergency Plan (April 1981) provides for the annual update of emergency information for members of the public within the plume exposure emergency planning zone and the conduct of an annual statistical sample of the public to assess awareness of actions to be taken in the event of an emergency.

Q.8. FUA Contention 7(e) asserts that the applicant has not developed realistic estimates of evacuation times and has not employed the methodology set forth in Appendix 4. Does the Staff have a position on this?

A. Appendix J to the applicant's Emergency Plan (April 1981) contains an evacuation time assessment study pertaining to the area surrounding the applicant's site. The staff has reviewed this evacuation time assessment study against the criteria of NUREG-0654 and determined that it is adequate.

Q.9. FUA Contention 7(f) asserts that the applicant has failed to provide adequate means for protecting those whose lack of mobility is impaired by lack of vehicles. Does the Staff have a position on this?

A. The applicant has included in the emergency information brochure disseminated to the public a statement requesting those persons who have special transportation needs to contact their local Civil Defense Office or Department of Public Safety and notify that organization in advance that they will require assistance in an emergency.

Q.10. FUA Contention 7(g) asserts that no plans have been made for the distribution and use of radioprotective drugs, such as potassium iodide (KI), as a protective response for the general public. Does the Staff have a position on this?

A. No provision for distribution of KI for the general public is required by the NRC/FEMA criteria. The NRC has requested that the Food and Drug Administration and FEMA conduct extensive studies into the utilization and distribution of KI to the general public as a protective action measure.

Q.11. FUA Contention 7(i) asserts that Table 6.2 in the applicant's emergency plan suggests that sheltering is the only Protective Action contemplated for the general public. Does the Staff have a position on this?

Q. Protective actions for members of the public in the event of a radiological emergency include sheltering and evacuation. The applicant's Emergency Plan provides for recommending protective measures to those offsite authorities responsible for actions to protect the public. The recommendation made by the applicant will be dependent upon the specific emergency situation and the expected dose to be received by the public. Table 6-1 of the applicant's Emergency Plan summarizes the protective actions, including both sheltering and evacuation, to be recommended for the general public. Table 6-2 indicates the initial actions of both sheltering and evacuation for a site area emergency and sheltering as the initial action for a general emergency in accordance with NUREG-0654, Appendix 1 guidance. The applicant's plan calls for evacuation for certain general emergency cases based on the results of more detailed analyses of plant conditions.

Q.12. FUA Contention 7(j) asserts that the emergency plans do not set forth the basis for the choice of recommended Protective Actions for the plume exposure pathway during emergency conditions. Does the Staff have a position on this?

A. The NRC requires that all licensees develop a four level Classification/Emergency Action Level Scheme. This classification system is required by 10 CFR 50, Appendix E. The basis of the accident classification scheme and Emergency Action Levels is contained in NUREG-0654, Appendix 1. Using this system, the various accidents are classified based on their seriousness and the

potential for offsite release. This system provides for worsening of accident conditions by providing prompt notification for minor events which could lead to more serious consequences given operator error or equipment failure or which might be indicative of more serious conditions which are not yet fully realized. A gradation is provided to assure fuller response preparations for more serious indicators. By classifying each potential accident into one of the four classes, Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency, and by identifying various instrument and radiation monitor readings and alarms which correspond to accidents or occurrences in each of these categories, accident recognition and classification is enhanced. The applicant's Emergency Plan incorporates a four-tiered accident classification system which meets the requirements of the regulation. These Emergency Action Levels (EALs) classify accidents in the Site Emergency and General Emergency categories at radiation readings or EPA Protective Action Guides (PAGs) recommended by NUREG-0654, Appendix 1. The applicant may recommend, and the State may choose, however, to take actions at lower levels of radiation readings and at lower fractions of PAGs than those specified in NUREG-0654 for particular emergency classes.

- Q.13. FUA Contention 7(1) asserts that onsite first-aid is inadequate. Does the Staff have a position on this?
- A. The applicant's Emergency Plan (April 1981) identifies the following capability pertaining to first aid:

- (1) Two personnel on each shift qualified in first aid techniques by attendance at the multimedia National Red Cross First Aid course.
- (2) First aid kits located throughout the plant.
- (3) An onsite medical room and a dispensary which contain a variety of medical supplies.
- (4) An arrangement (letter of agreement) with the Pinner Clinic for a physician to respond to the site if medical treatment is required.
- (5) An arrangement (letter of agreement) with the Fairfield County Emergency Medical Service to provide transportation of a victim(s) to a hospital. We conclude that this capability is adequate.

Q.14. FUA Contention 7(m) asserts that the News Media Center is not located at the Applicant's Emergency Operations Facility. Does the Staff have a position on this?

A. Colocation of the News Media Center with the Emergency Operations Facility is not an NRC requirement. The applicant's interim News Media Area is currently located in a building adjacent to the applicant's interim Emergency Operations Facility. The applicant has made provisions for equipment and facilities at the interim News Media Area to accommodate various media representatives.

Q.15. FUA Contention 7(n) asserts that the Interim Emergency Operations Facility does not comply with the requirements of NUREG-0696, Rev. 1. Does the Staff have a position on this?

A. NUREG-0696 sets forth the criteria pertaining to the emergency operations facilities required of licensees and applicants. The NRC

has established the date of October 1, 1982 by which the emergency operations facilities must meet the criteria of NUREG-0696. The NRC and the applicant are aware that the applicant's interim Emergency Operations Facility (EOF) does not presently comply with the criteria of NUREG-0696 for a permanent EOF. The staff has reviewed the applicant's facility and determined that, in the interim, the facility is acceptable. The applicant has committed to meet the requirements pertaining to the emergency operations facility either by complying with the specific criteria or meeting an alternative acceptable to the Staff. The applicant's proposed permanent emergency operations facility will be reviewed by the staff to assure that the facility is operational prior to the required date. It is expected that this date may be later than the date the operating license is issued.

Q.16. FUA Contention 7(nn) asserts that the Applicant's meteorological monitoring equipment does not meet the requirements of NUREG-0654, Rev. 1, Appendix 2, in that it lacks a viable back-up system with emergency power and is not seismically qualified. Does the Staff have a position on this?

A. Appendix 2 to NUREG-0654 sets forth the meteorological criteria for emergency preparedness at nuclear power plants. The criteria do not call for emergency power or seismic qualification for meteorological equipment. Appendix 2 contains a time schedule by which the upgrading of meteorological capability is to be accomplished in stages. The applicant's meteorological capability, as it currently

exists, does not meet the criteria of Appendix 2. The applicant has committed to meet the requirements pertaining to meteorology either by complying with the specific criteria and implementation dates or meeting an alternative acceptable to the Staff prior to license issuance. The applicant's proposed meteorological capability will be reviewed by the Staff to assure that this capability is present prior to the required date. It is expected that this date may be later than the date the operating license is issued.

Q.17. FUA Contention 7(o) asserts that the Applicant has failed to demonstrate that its siren system will meet the requirements of NUREG-0654, Rev. 1, Appendix 3. Does the Staff have a position on this?

A. Appendix 3 of NUREG-0654 sets forth the criteria pertaining to the means for providing prompt alerting and notification of the population within the plume exposure pathway Emergency Planning Zones. The criteria do not require seismic design of the public notification system. The applicant has developed, provided a description to the staff of, and is currently installing an alert and notification system to be used to promptly inform the public within the plume exposure pathway Emergency Planning Zone and which is intended to meet the criteria of Appendix 3. The staff has reviewed the system description and found it conceptually acceptable. The alert and notification system, upon completion, will be evaluated by the Federal Emergency Management Agency by means of a demonstration of system operation.

Q.18. FUA Contention 7(p) asserts that the Applicant has failed to comply with the requirements of NUREG-0654, Rev. 1, Appendix 4 for determining and describing evacuation times, has failed to establish the acceptability of criteria used to establish evacuation times, and has failed to demonstrate the capability of the Applicant and State and local governments to assure timely evacuation under accident conditions. Does the Staff have a position on this?

A. Appendix J to the applicant's Emergency Plan (April 1981) contains an evacuation time assessment study pertaining to the area surrounding the applicant's site. The staff has reviewed this evacuation time assessment study against the criteria of NUREG-0654 and determined that it is adequate. The criteria of NUREG-0654 were developed by the NRC and FEMA and subjected to a public comment period before being made final. The criteria assure that evacuation times are quantified in a manner adequate to aid planners in optimizing their response (e.g. by planning to augment traffic controls at key points) and to aid decision-makers in choosing between protective actions such as sheltering and evacuation given the actual conditions of an emergency. The capability of State and local governments to respond will be evaluated by FEMA based on a review of the offsite plans and the recent joint exercise. Actual evacuation of the general public in an exercise is not required by the NRC regulations or NRC/FEMA guidance.

Q.19. FUA Contention 7(r) asserts that the Plume Exposure Pathway EPZ boundaries established in local plans are not based upon reasonable



criteria which have been explicitly stated and demonstrated. Does the Staff have a position on this.

- A. The basis for the Emergency Planning Zone sizes is the collective judgment of the NRC/EPA task force and the basis for this judgment is set forth in detail in NUREG-0396/EPA 520/1-78-016. The Commission has now adopted the EPZ sizes in the NRC regulations after extended rulemaking.

Q.20. Contention 7(t) asserts that the Applicant, state and local plans otherwise fail to comply with some unspecified requirements set forth therein. Does the Staff have a position on this?

- A. The Staff has reviewed and evaluated the applicant's Emergency Plan (April 1981) against NUREG-0654/FEMA-REP-1, Revision 1. The staff evaluation is documented in the Safety Evaluation Report NUREG-0717 Supplement No. 2.

Q.21. FUA Contention 8 asserts that public information materials distributed by the applicant relative to radiological emergency response planning is inaccurate, intentionally deceptive regarding the potential health effects of radiation and present evacuation routes which could result in persons unwittingly evacuating through the plume. Does the Staff have a position on this?

- A. The applicant has prepared and disseminated to the population within the plume exposure pathway Emergency Planning Zone an emergency information brochure (see response to Question 7). This brochure has been reviewed by the staff and the Federal Emergency Management Agency. The joint agency review resulted in the following comments:

(1) The overall evaluation is that the brochure is well done. It presents the information in a brief, readable format and the scope of the information meets all requirements.

(2) With respect to the contamination levels in the secondary loop, the applicant somewhat overstates the level of cleanliness of the secondary loop fluid. However, the purpose of this section of the brochure is to explain, in layman terminology, a pressurized water reactor nuclear power plant including the concept of a primary loop and a secondary loop. The brochure provides an acceptable explanation of the applicant's power plant.

(3) It would be useful to add to the scope of the map the locations of the reception centers and indicate that the public may be instructed to take alternate routes under some accident conditions.

(4) The information presented on low-level radiation contains several items of controversy. The level of radiation which is clinically detectable is probably in the range of 10,000 to 25,000 mrem. The staff is not familiar with the background levels noted for parts of Brazil. The staff believes the average natural background radiation in Colorado to be 170 mrem.

(5) The section pertaining to notification of the public by means of a siren fails to identify the specific siren signal to be utilized.

(6) It would be desirable to provide instructions on the cover of the brochure which instruct the public to retain the brochure (e.g. by clipping it in the telephone book). It would also be desirable to print the map, routing instructions and the information in the sections on notification, sheltering and evacuation on a page in the telephone book.

The Staff finds it appropriate that the next scheduled revision to the emergency information brochure incorporate comments (3), (4), (5) and (6). See also the response to Question 7.

Q.22. FUA Contention 10 asserts that the applicant, State and local plans have been formulated without reference to the Supplement to the Draft Environmental Statement (NUREG-0534) and thus fail to address appropriate protective measures needed to provide radiological protection to all residents in the vicinity of the Summer station who might be threatened with injury or death from an accident greater than a design basis accident. Does the Staff have a position on this?

A. The applicant's emergency plan has been formulated to incorporate the joint NRC and FEMA guidance set forth in NUREG-0654 and to comply with the requirements of 10 CFR 50 and Appendix E thereto. The attached figure (Attachment C) shows results for the Summer site plotted on Figure I-11 of NUREG-0396. As indicated in NUREG-0396, this figure formed part of the basis for the size of the plume exposure emergency planning zone which was subsequently made part of the Commission's regulations (10 CFR 50.33(g) and 50.47(c)(2)). The

doses indicated are for the cloud centerline location as a function of distance. The unplanned evacuation case from NUREG-0396 in Figure I-11 assumed that, even without formal plans, action would be taken to relocate individuals from areas of high ground radiation (resulting from cloud deposition of fission products) within 4 hours of cloud passage. No movement of people was assumed before that time. Two cases are plotted for the specific meteorology and power level of the Summer plant, one for 4 hour ground deposition exposure and one for 24 hour ground deposition exposure (leaving individuals in a high radiation area for many hours is judged highly unlikely). The Summer cases were prepared using the same numerical techniques as for the Draft and Final Environmental Statements.

The figure in Attachment C illustrates that the part of the rationale of NUREG-0396 relating to high consequence accidents by which the emergency planning zone size was determined at about 10 miles is consistent with similar calculations made specifically for the Summer site within the same probability range.

As indicated in the FES, it is possible to calculate numbers of fatalities or early injuries at distances substantially greater than 10 miles from the plant. This is considered so unlikely as to not warrant specific emergency planning measures.

- Q.23. FUA Contention 11 asserts that the applicant and the surrounding counties do not possess the experience and technical ability adequately to plan for emergency preparedness, to prepare for a radiological emergency, or the capability for implementing

protective measures based upon protective action guides and other criteria as required under NUREG-0654, Rev. 1, at II.J.9. Does the Staff have a position on this?

- A. The NRC has upgraded its emergency preparedness regulations in 10 CFR 50 and Appendix E thereto in order to assure that adequate protective measures can and will be taken in the event of a radiological emergency. As provided in 10 CFR 50.47, no operating license for a nuclear power reactor will be issued unless a finding is made by NRC that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The NRC will base its finding on a review of the Federal Emergency Management Agency findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the applicant's emergency plans are adequate and capable of being implemented.

The staff has reviewed the applicant's Emergency Plan against the criteria of NUREG-0654 and documented the evaluation in the Safety Evaluation Report, NUREG-0717 Supplement No. 2. The staff concluded that the applicant's Emergency Plan, upon satisfactory completion of those items for which the applicant has made commitments as identified in the Safety Evaluation Report, Supplement No. 2, will provide an adequate planning basis for an acceptable state of emergency preparedness and will meet the requirements of 10 CFR 50 and Appendix E thereto. The final NRC approval of the state of

emergency preparedness for the applicant's site will be made following review of the findings and determinations made by FEMA on State and local emergency response plans, and review of the joint exercise held to demonstrate the capability to implement the applicant, State, and local plans. The NRC evaluation of the emergency exercise dispels the notion that the Applicant does not possess the capability to adequately prepare for, and carry out, its emergency planning responsibilities in the event of an emergency at the plant. See I&E Inspection Report No. 81-09, dated May 26, 1981 (Attachment D).

- Q. 24. FUA Contention 13 asserts that the NRC and Applicant have failed to comply with the requirements of NUREG-0694 that 50 thermoluminescent dosimeters be placed around the site. Does the Staff have a position on this?
- A. The guidelines of NUREG-0654 state that approximately 50 TLDs should be placed around a plant site. See separate testimony of Edward F. Branagan. TLDs are not relied upon to provide the applicant's emergency operations personnel with information by which decisions are made regarding the health and safety of the general public under accident conditions. Measurement of offsite radiation levels (e.g. monitoring teams with portable detectors and the reading of prepositioned TLDs) are confirmatory actions used to supplement information available onsite. Decisions regarding protective action recommendations for the public are based upon existing plant

conditions taking into account potential or projected offsite consequences which could result from such conditions. Specific plant parameter values and effluent monitor levels must be used as Emergency Action Levels which trigger the declaration of emergency classes.

Appendix 1 to NUREG-0654 sets forth the criteria and basis of the accident classification scheme and Emergency Action Levels. Using this system, the various plant conditions are classified based on their seriousness and the potential for offsite release. This system provides for notification for minor events which could lead to more serious consequences given operator error or equipment failure or which might be indicative of more serious conditions which are not yet fully realized. A gradation is provided to assure fuller response preparations for more serious indicators. By classifying each potential accident into one of the four classes, Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency, and by identifying various instruments and radiation monitor readings and alarms which correspond to accidents or occurrences in each of these classes, ~~accident recognition and classification is enhanced.~~

Contention 7

The Emergency Response Plans of the Applicants, the surrounding counties, and the State of South Carolina do not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, and do not conform to the requirements of NUREG 0654, Rev. 1, in that:

a) (II.B.1.) The Applicants plan does not meet the minimum staffing requirements as set forth in Table B-1.

b) (II.B.9.) The Applicants's plan includes agreements with local organizations which fail to delineate the authority, responsibilities, and limits on their actions.

c) (II.B.1.) The Applicants have failed to demonstrate the ability to notify local Emergency Preparedness officials, as distinguished from communications centers, within 15 minutes.

d) (II.B.1.) The Applicants have not adequately planned for the distribution of informational materials.

e) (II.J.8 and Appendix 4.) The Applicant has not developed realistic estimates of evacuation times and has not employed the methodology set forth in Appendix 4.

f) (II.J.10.c.) The Applicants have failed to provide adequate means for protecting those whose lack of mobility is impaired by lack of vehicles.

g) (II.J.10.e.) No plans have been made for the distribution and use of radioprotective drugs, such as Potassium Iodide, as a Protective Response for the general public.



h) (II.G.10.H.) Relocation centers are not located at least 5 miles from the Plume Exposure Pathway EPZ, e.g., Winnsboro High School is a scant 2-3 miles from the EPZ. All of the relocation centers in Fairfield County are within 10 miles of the EPZ.

i) (II.G.10.I.) Table 6.2 in Applicant's Plan suggests that sheltering is the only Protective Action contemplated for the general public.

j) (III.G.10.M.) The plans do not set forth the bases for the choice of recommended Protective Actions from the plume exposure pathway during emergency conditions.

k) (III.L.1.) Hospital and medical services for the general public are not provided for.

l) (III.L.2.) On-site emergency first aid capability is inadequate.

m) (II.G.3.b.) The News Media Center is not located at the Applicant's Emergency Operations Facility.

n) (III.H.2.) The Interim Emergency Operations facility does not comply with the requirements of NUREG 0696, Rev. 1.

n) (Appendix 2.) The Applicant's meteorological monitoring equipment does not meet the requirements of Appendix 2. It lacks a viable back-up system with emergency power and is not seismically qualified.

o) (Appendix 3.B.2.) The Applicant has failed to demonstrate that its siren system will meet the requirements of Appendix 3, that the tests conducted by the Applicant on audibility were sufficient, and that the siren system to be installed has a high level of reliability including under seismic conditions which might occasion a radiological

emergency.

p) (Appendix A.) The Applicant has failed to comply with the requirements of Appendix 4 for determining and describing evacuation times, has failed to establish the acceptability of criteria used to establish evacuation times, and has failed to demonstrate the capability of Applicant and State and local governments to assure timely evacuation under accident conditions.

q) Applicant's and local plans demonstrate a lack of cooperation in their development and planned implementation.

r) The Plume Exposure Pathway EPZ boundaries established in local plans are not based upon reasonable criteria which have been explicitly stated and demonstrated.

s) The failure to base Plume Exposure Pathway EPZs on rational and scientifically defensible bases which give reasonable assurance that the health and safety of the general public will be protected exposes students at Kelly Miller Elementary School and Greenbrier Head Start Center in Fairfield County to unwarranted risks to their health and safety.

t) And in other ways the Radiological Emergency Response Plans of the Applicant, the State of South Carolina, and the surrounding counties fail to comply with the requirements set forth therein.

#### BASIS FOR CONTENTION 7

Petitioner and its members possess unique knowledge of the people, roads, traffic patterns, and topography of Fairfield County and nearby communities and would assist the Licensing Board to build a record on the adequacy of emergency planning for the region.

In addition to bases offered in the statement of the contention, Petitioner would show that: (bases are listed by sub-contention letter)

a) Applicant's Table B-1 sets forth that Applicant would be unable to provide back-up support for several functions within the required thirty minutes. That the Chemistry Radiochemistry function would not be staffed at all times.

d) Applicant plans only to mail informational materials to every postal holder. Many mail addresses in the area serve several households, so that a single "Occupant" mailing to each postal box would not reach every household. Posting of informational materials in local businesses will not sufficiently supplement inadequate mailings. Additional distribution methods should be required.

k) Arrangements for medical services at the Pinner Clinic in Fawn, South Carolina, and Richland Memorial Hospital in Columbia, South Carolina, apparently apply only to employees of the Applicant and not to the general public.

l) Applicant's plan calls for only one person qualified in first aid techniques on each shift. Injury to that person or accident conditions requiring first attention to accident control duties could nullify that capability.

n) The Interim Emergency Operations Facility is located on-site. The facility is a temporary office structure which is not engineered for the design life of the plant, does not provide a protection factor equal to or greater than 5, and lacks adequate ventilation protection as required in NUREG 0696, Rev. 1, Table 2.

c) For example. All persons in Fairfield County are expected to evacuate to Winnsboro High School. Under typical wind conditions, that would be the least appropriate response for the majority of persons in the EPZ in Fairfield County. Those in the southern part of the County would be safer evacuating towards the Richland County facility. Those in the northern part of the EPZ would more wisely evacuate to the Newberry County center. No such coordination exists, however.

s) Young persons are especially susceptible to radiation injury. However, the Plume Exposure Pathway EPZ, which extends to nearly 12 miles just north of Kelly Miller School in Fairfield County, swings in to miss including that school in the EPZ by, quite literally, "snouting distance". Kelly Miller is an all-black elementary school. The Green-brier Head Start Center is located nearby and also within view of the EPZ but not included in it.

t) Final plans have not been available to Petitioners from the four counties and the State of South Carolina.

Contention 8

Public Information Materials distributed by the Applicant relative to radiological emergency response planning are inaccurate, intentionally deceptive regarding the potential health effects of radiation, and present evacuation routes which could result in persons unwittingly evacuating through the plume.

BAISIS FOR CONTENTION 8

The brochure entitled "V.C. Summer Emergency Information," which the Applicant says will be mailed to every household in the Plume Exposure Pathway, includes the following untruthful and inaccurate information:

- a) that the secondary water system in the steam line is "uncontaminated" and "pollution-free";
- b) that radiation health effects can only be detected at levels of 25,000 millirems and above.

These statements and additional verbiage in the brochure are designed to give residents a false sense of security. By failing to accurately describe the genuine health hazards, which are recognized by the body of the scientific community, the Applicant may lead residents to believe that accidents with long-term health consequences are not sufficiently important to warrant evacuation.

Further, the evacuation routes laid out in the brochure are irrational and could result in individuals unwittingly evacuating through the plume. A resident of Southwest Fairfield County (Zones C-1 and C-2) is directed to drive towards Winnsboro, which is the direction the prevailing winds could be expected to carry the plume.

Contention 9

The State of South Carolina and the counties surrounding the Summer station do not have the capability for implementing protective measures based upon protective action guides and other criteria as they apply to residents of the Plume Exposure Pathway who do not own or have access at all times to private vehicles.

BASIS FOR CONTENTION 9

The area within the Plume Exposure Pathway is predominantly rural and no public transportation system exists. Many of the residents of the area are old, sick, or poor and do not have transportation or are without transportation during significant periods of the day. Existing plans in Fairfield County, for example, call for the use of a) school busses when school is not in session, b) vans from the Council on Aging and Community Action Program, or c) city busses brought in from Columbia.

School busses in South Carolina are driven by high school students. If school were not in session, the drivers would not be available. The number of vans is limited and inadequate. The city busses from Columbia could not arrive in time, are unsuited to many of our country roads, and would be driven by drivers unfamiliar with the many nooks and crannies of the county.

Moreover, no door-to-door survey to identify the need has been undertaken. Newspaper ads were placed in the Winnsboro papers asking people who needed transportation to call the Emergency Preparedness Director's office. A good many people in rural Fairfield County do not read. Few

Contention 10

Radiological Emergency Response plans of the Applicant, the State of South Carolina, and the surrounding communities have been formulated without reference to the Draft Environmental Statement, Supplement (A. RES 0834, Supplement) and thus fail to address appropriate protective measures needed to provide radiological protection to all residents in the vicinity of the Summer station who might be threatened with injury or death from an accident greater than a design basis accident.

BASIS FOR CONTENTION 10

During testimony before the ACRS Subcommittee on Electric Power (February 26, 1981), Emergency Coordinator Ken Beale conceded that no reference had been made to the Draft ES in preparing the emergency plans. The first ES which evaluates the environmental impacts of a so-called Class 9 accident, this Supplement should have served as the cornerstone of emergency planning. Instead, it was ignored.

Contention 11

The Applicant and the surrounding counties do not possess the experience and technical ability adequately to plan for emergency preparedness, to prepare for a radiological emergency, or the capability for implementing protective measures based upon protective action guides and other criteria as required under NUREG 0654, Rev. 1, at 11.J.9.

BASIS FOR CONTENTION 11

The capability to plan and carry out protective measures in the event of a radiological emergency presumes the personnel with experience and training in emergency planning and an understanding of the characteristics of radiological effluents and their potential health effects.

The Applicant and the governments of the surrounding counties lack that capability.

Corporate Emergency Coordinator, Ken Beale, of the Applicant, has training and experience as a Health Physicist. His resume reveals neither training nor experience which would qualify him for his current position and responsibilities. His assistant, Site Emergency Coordinator, is totally lacking in any qualifications for a role in emergency planning or any training beyond a brief practicum on nuclear power generation at an elementary level.

Fairfield County Director of Emergency Preparedness admits that he knows nothing about nuclear power or the health effects of radiation.



people in western Fairfield County read the Winnsboro papers. Many people in the area do not have telephone, and for many it is a long-distance telephone call to Winnsboro. Not surprisingly, the ads drew no response.

Contention 13

The NRC and the Applicant have failed to comply with the requirement of NUREG 0694 (III.D.2.4) that 50 thermoluminescent dosimeters be placed around the site in coordination with the State and the Applicant. The Staff should be required to demonstrate that those TLDs are capable of accurately reading  $\text{Co}^{60}$ . By themselves, the TLDs are not adequate to providing emergency operations personnel with the information required to competently make the decisions required to reasonably assure the health and safety of the general public under accident conditions. Real-time monitors capable of reading gamma radiation levels should be required at the sites where TLDs are currently planned.

BASIS FOR CONTENTION 13

According to the SER (NUREG 0717) at 22-99, the NRC will only place 40 TLDs.

Under accident conditions, TLDs do not provide information quickly enough to adequately assist appropriate decision-making. Only real-time monitors tied into the Applicant's DAMS system with monitors placed at many locations and not just within 1,000 m. of the plant can provide those necessary inputs.

## PROFESSIONAL QUALIFICATIONS

of

THOMAS A. KEVERN

My name is Thomas A. Kevern. I am a nuclear engineer in the Emergency Preparedness Licensing Branch, Division of Emergency Preparedness, Office of Inspection and Enforcement. In my position as Emergency Preparedness Team Leader, I am responsible for the review and evaluation of emergency plans pertaining to nuclear power plants.

I received a Bachelor of Industrial Engineering Degree from Ohio State University in 1969 and completed graduate work in Operations Research at Ohio State University in 1969. I completed the U. S. Navy nuclear power training program for commissioned officers in 1971. I received a Master of Science Degree in Systems Management from the University of Southern California in 1978. Additionally, I have completed two NRC courses on the design and operation of commercial nuclear power plants.

I was a commissioned officer in the U. S. Navy from December 1969 until January 1979. I received considerable training and experience in the operation and supervision of nuclear power plants and was qualified as Chief Engineer. I was the Division Officer of several engineering divisions on two nuclear-powered submarines, responsible for the operation and maintenance of the reactor and support systems and for the training and supervision of engineering personnel. For three years I was directly involved in the

construction of a nuclear-powered submarine, supervising the construction and testing of reactor, electrical and mechanical systems. During my last tour in the Navy, I was a staff officer to the Navy's manager for acquisition of nuclear powered attack submarines and was responsible for several aspects of the construction and testing program for new construction nuclear submarines.

I joined the NRC in January 1979 and, until June 1980, was the project manager for two operating nuclear power plants. In this capacity I managed the review and evaluation of safety and environmental considerations associated with the design and operation of these plants. In July 1980 I was assigned my present position in the emergency preparedness organization.

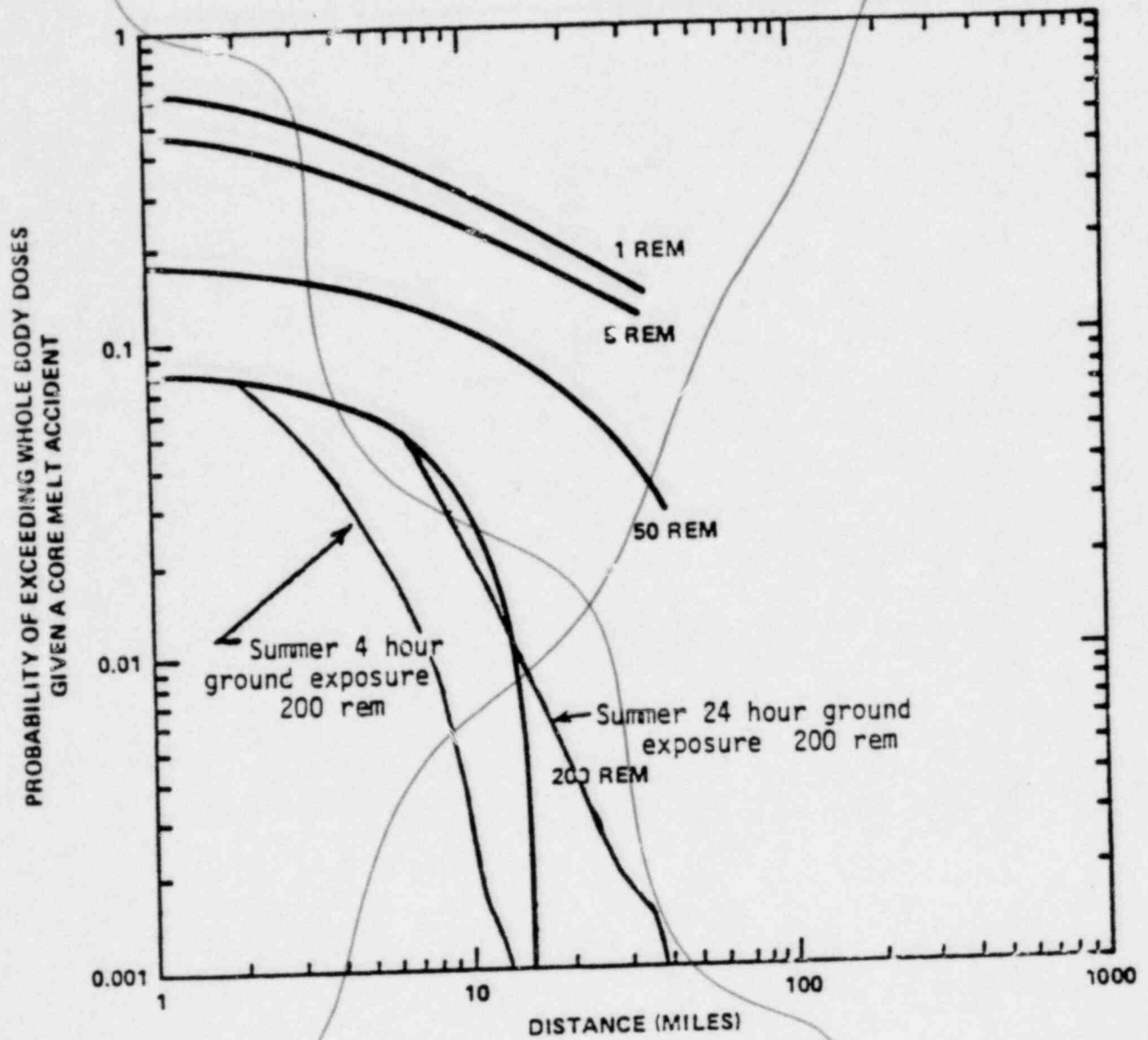


Figure I-11. Conditional Probability of Exceeding Whole Body Dose Versus Distance. Probabilities are Conditional on a Core Melt Accident ( $5 \times 10^{-5}$ ).

Whole body dose calculated includes: external dose to the whole body due to the passing cloud, exposure to radionuclides on ground, and the dose to the whole body from inhaled radionuclides.

Dose calculations assumed no protective actions taken, and straight line plume trajectory.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303  
MAY 26 1981

South Carolina Electric and Gas Company  
ATTN: T. C. Nichols, Jr., Vice President  
Power Production and System Operations  
P. O. Box 764  
Columbia, SC 29218

Gentlemen:

Subject: Report No. 50-395/81-09

This refers to the routine inspection conducted by Mr. D. L. Andrews of this office on April 29 - May 2, 1981, of activities authorized by NRC Construction Permit No. CPPR-94 for the V. C. Summer facility and to the discussion of our findings held with Mr. O. S. Bradham, Manager Nuclear Operations at the conclusion of the inspection.

Areas examined during the inspection and our findings are discussed in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspectors.

Within the scope of this inspection, no violations or deviations were disclosed.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed report will be placed in the NRC's Public Document Room. If the report contains any information that you believe to be exempt from disclosure under 10 CFR 9.5(a)(4), it is necessary that you: (a) notify this office by telephone within ten days from the date of this letter of your intention to file a request for withholding; and (b) submit within twenty-five days from the date of this letter a written application to this office to withhold such information. If your receipt of this letter has been delayed such that less than seven days are available for your review, please notify this office promptly so that a new due date may be established. Consistent with section 2.790(b)(1), such application must be accompanied by an affidavit executed by the owner of the information which identifies the document or part thereof sought to be withheld, and a full statement of the reasons on the basis of which it is claimed that the information should be withheld from public disclosure. This section further requires the statement to address with specificity the considerations listed in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, the report will be placed in the Public Document Room.

MAY 26 1981

South Carolina Electric and Gas  
Company

2

Should you have any questions concerning this letter, we will be glad to discuss them with you.

Sincerely,

*R.C. Lewis*  
R. C. Lewis, Acting Director  
Division of Resident and  
Reactor Project Inspection

Enclosure:  
Inspection Report No. 50-395/81-09

cc w/encl:  
J. B. Knotts, Jr.  
A. A. Smith, Site QA Coordinator  
O. S. Bradham, Manager  
Nuclear Operations



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA ST., N.W., SUITE 3100  
 ATLANTA, GEORGIA 30303

Report No. 50-395/81-09

Licensee: South Carolina Electric and Gas Company  
 Columbia, SC 29218

Facility Name: V. C. Summer

Docket No. 50-395

License No. CPPR-94

Inspection at V. C. Summer Site near Columbia, South Carolina

Inspectors:	<u>W. W. Stansberry</u>	<u>26 May 81</u>
	For D. L. Andrews	Date Signed
	<u>W. W. Stansberry</u>	<u>26 May 81</u>
	For C. R. McFarland	Date Signed
	<u>W. W. Stansberry</u>	<u>26 May 81</u>
	W. W. Stansberry	Date Signed

Accompanying Personnel: G. R. Jenkins, W. F. Kane, T. A. Kevern, S. P. Weise,  
 E. E. Hickey, K. M. Clark

Approved by:	<u>G. R. Jenkins</u>	<u>5/26/81</u>
	G. R. Jenkins, Section Chief, EPPS Branch	Date Signed

SUMMARY

Inspection on April 29 - May 2, 1981

Areas Inspected

This routine, announced inspection involved 253 inspector-hours on site in the area of a coordinated radiological emergency exercise.

Results

In the area inspected, no violations or deviations were identified.



## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*T. C. Nichols, V.P., Group Executive, Nuclear Operations
- \*W. A. Williams, Jr., General Manager, Nuclear Operations
- \*O. S. Bradham, Plant Manager
- \*J. G. Connelly, Assistant Manager
- M. Whitaker, Group Manager, Nuclear Engineering and Licensing
- \*C. A. Price, Manager, Nuclear Engineering
- \*K. E. Beale, Emergency Planning Coordinator
- O. Dixon, Construction/Repair Coordinator
- B. Baehr, Manager, Health Physics and Environmental Programs
- \*R. M. McSwain, Media Coordinator
- \*B. G. Croley, Technical Support Supervisor
- \*A. R. Koon, Technical Service Coordinator
- \*S. J. Smith, Maintenance Supervisor
- L. A. Blue, Health Physics Supervisor
- M. Counts, Training Assistant
- L. Storz, Operations Supervisor

Other licensee employees contacted included 20 exercise controllers, six operators, and four security force members.

#### Other Organizations

- J. Richardson, Federal Emergency Management Agency (FEMA)
- G. Wise, Director, South Carolina Emergency Preparedness
- P. McCloud, South Carolina Emergency Preparedness
- L. Thomas, South Carolina Governor's Office
- G. Boone, South Carolina Governor's Special Staff
- M. Housan, M.D., Richland Memorial Hospital
- L. Ross, RN, Richland Memorial Hospital

#### NRC Resident Inspector

- \*J. L. Skolds

- \*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on May 2, 1981 with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Pre-Exercise Activities

- a. Emergency Plan Review - Prior to the exercise the inspectors reviewed the licensee's Radiation Emergency Plan (REP), Revision 4, transmitted to the NRC April 15, 1981, and draft Emergency Plan Procedures (EPP) that were used to implement the plan for the exercise. The Emergency Plan provides for the implementation of the planning standards of 10CFR50.47, 10CFR50, Appendix E, and specific acceptance criteria contained in NUREG 0654/FEMA-REP-1. The inspectors attended a briefing for the SCE&G exercise controllers on April 30, 1981.
- b. Exercise Scenario Review - The emergency exercise scenario, developed by the licensee, met the requirements of 10CFR50.47(b)(14), 10CFR50, Appendix E, paragraph IV.F and specific criteria of NUREG 0654, Section N.3. Minor changes to the scenario were made pursuant to a discussion between the inspectors and licensee representatives on April 30, 1981. The scenario provided for a sequence of simulated events which required the mobilization of the licensee's emergency organization beginning with an Unusual Event and progressing through sequentially escalating classes to a General Emergency. Some time compression was written into the scenario to coordinate the overall involvement of licensee, State and local organizations participating in the exercise. Simulated emergency conditions began at about 5:30 a.m. on May 1, 1981 and the onsite exercise activities were terminated at about 6:00 p.m. on the same day. The sequence of simulated events was coordinated in advance with State representatives to provide an opportunity for exercising the State and local emergency response organizations.

6. Emergency Exercise Simulated Events

The exercise was conducted per the scenario which contained the following major milestones related to the nuclear station:

- 0530      A simulated crack in a weld of a 2" drain line in the reactor coolant system resulted in an unidentified leakage of 5 gpm. An unusual event emergency was declared.

- 0830 The reactor coolant leakage had increased to 60 gallons per minute. An alert emergency was declared by the Shift Supervisor, acting as the Emergency Director, and the onsite Technical Support Center (TSC) and Operations Support Center (OSC) were activated. Proper notifications of the emergency classification and plant status were made to State and Federal agencies. An on-site radiation monitoring team was dispatched to verify that no release of radioactive material within the plant had occurred.
- 0930 A reactor shutdown was initiated in accordance with plant Technical Specifications. The Plant Manager assumed the position of Emergency Director for the emergency organization. Assembly and accountability of onsite personnel was initiated.
- 1000 The reactor coolant drain line broke open causing a rapid loss of reactor coolant. The Emergency Director declared a Site Emergency and initiated site personnel evacuation, activated the augmented emergency organization, and dispatched onsite and offsite radiological monitoring teams.
- 1045 The accountability of onsite personnel revealed that one individual was missing.
- 1100 A search and rescue team dispatched from the OSC found the missing person with simulated injuries and radioactive contamination. The simulated casualty was surveyed for contamination levels, stabilized by first aid personnel and was then transported to a participating hospital for further treatment.
- 1130 A relief valve failed open and caused a simulated unplanned release of radioactive material from the main plant vent. Two more offsite radiological monitoring teams were dispatched by the Emergency Director.
- 1200 The radioactive release increased and the Emergency Director declared a General Emergency class accident.
- 1445 The failed valve was repaired by a team dispatched from the OSC and the simulated release of radioactive material to the atmosphere was terminated.
- 1500 The emergency classification was down graded to an Alert by the Emergency Director.
- 1600 A large volume of water from the waste radioactive liquid tanks was simulated to be released to the pumped storage plant penstocks. Subsequent monitoring of river water by the emergency teams revealed that the radioactivity concentration in the river was no greater than normal environmental levels.

1800 Exercise terminated.

7. Assignment of Responsibility

This area was observed to insure that primary responsibilities for emergency response by the licensee have been specifically established and that adequate staff is available to respond to an emergency as required by 10CFR-50.47(b)(1), 10CFR50, Appendix E, paragraph IV.A, and specific criteria in NUREG 0654, Section II.A.

The inspectors verified that specific assignments have been made for the licensee's emergency organization, as described in Section 2, 5, and Appendix C of the V.C. Summer Station Radiation Emergency Plan, and that there were adequate staff available to fulfill the emergency functions required by the plan. The inspectors had no further questions in this area.

8. Onsite Emergency Organization

The licensee's onshift emergency organization was observed to verify that the responsibilities for emergency response are unambiguously defined, adequate staffing is provided to insure initial facility accident response in key functional areas at all times, and that the interfaces among various onsite response activities and offsite support activities are specified as required by 10CFR50.47(b)(2), 10CFR50, Appendix E, paragraph IV.A, and specific criteria in NUREG 0654, Section II.B.

The inspectors observed that the Operations Supervisor arrived onsite shortly after the initiation of the simulated emergency events but did not relieve the Shift Supervisor as Emergency Director as indicated in Section 5.2.5 of the Emergency Plan. The inspector noted that the Operations Supervisor contributed to the emergency organization and, overall, his actions appeared to be appropriate for the response to the simulated emergency conditions existing within the plant. A licensee representative stated that the apparent discrepancy between the Operation Supervisors actions and the Emergency Plan requirements would be resolved. This area will be reviewed during a subsequent inspection (50-395/81-09-01).

9. Emergency Response Support and Resources

This area was observed to insure that arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified as required by 10CFR50.47(b)(3), 10CFR50, Appendix E, paragraph IV.A, and specific criteria in NUREG 0654, Section II.C.

The inspectors observed that the emergency response support and resources arrangements had been made as stated in Sections 5, 7 and Appendix C of the Emergency Plan. The inspectors had no further questions in the above area.

#### 10. Emergency Classification System

This area was observed to insure that a standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee as required by 10CFR50.47(b)(4), 10CFR50, Appendix E, paragraph IV.C, and specific criteria in NUREG 0654, Section II.D.

The inspectors observed that the emergency classification system was in effect as stated in Section 4 of the Emergency Plan and in Implementing Procedure EPP-001. The system appeared to be adequate for the classification of the simulated accident and provided initial and continuing mitigating actions taken during the simulated emergency. The inspectors had no further questions in this area.

#### 11. Notification Methods and Procedures

This area was reviewed to insure that procedures have been established for notification by the licensee of State and local response organizations and emergency personnel, and that the content of initial and followup messages to response organizations has been established as required by 10CFR-50.47(b)(5), 10CFR50, Appendix E, paragraph IV.D, and specific criteria in NUREG 0654, Section II.E.

The inspectors observed that notification methods and procedures have been established and were used to provide prompt and accurate information concerning the simulated emergency conditions to Federal, State and local response organizations and to alert the licensee's augmented emergency response organization in a timely manner. An inspector stated that the notification procedure should be changed to provide earlier notification to the NRC. Currently the NRC is listed as the twelfth agency to be notified of an accident condition. Licensee representatives agreed to review the notification procedure and make appropriate revisions. This area will be reviewed during a subsequent inspection. (50-395/81-09-02).

#### 12. Emergency Communications

This area was observed to insure that provisions exist for prompt communications among principle response organizations and emergency personnel as required by 10CFR50.47(b)(6), 10CFR50, Appendix E, paragraph IV.E, and specific criteria in NUREG 0654, Section II.F.

- a. Information Flow - The inspectors noted that there was a lack of information flow from the State Emergency Operations Center to the

licensee's Emergency Operations Facility concerning actions that had been taken by the offsite agencies. A licensee representative stated that the area of information feedback would be discussed with South Carolina representatives.

- b. Message Verification - An inspector observed that some information passed from the Technical Support Center to the Emergency Operations Facility (EOF) was not fully understood by personnel in the EOF. There was some confusion concerning the wind speed reported to the assessment organization, unclear definition of the evacuation of the owner controlled area around the plant site, and information concerning the simulated release of radioactive liquid from the plant. The inspector stated that a system for message verification is needed between all emergency organizations. A licensee representative stated that a verification system would be developed and implemented. This area will be reviewed during a subsequent inspection. (50-395/81-09-03)

### 13. Public Education and Information

This area was observed to insure that information was available to the public on what their initial actions should be during an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for information concerning the emergency (including the physical location or locations) as established in advance, and that information concerning the simulated emergency was made available for dissemination to the public as required by 10CFR50.47(b)(7), 10CFR50, Appendix C, paragraph IV.D, and specific criteria in NUREG 0654, Section II.G.

The inspectors observed that public education and information programs have been provided and include a brochure "V. C. Summer Emergency Information" that has been distributed to the public within the EPZ. The brochure does not directly address the subject of respiratory protection, however, it does explain the possible need for sheltering. Sheltering information is included for each class of emergency. The brochure does not address the subject of radioprotective drugs as to what they are, how they might be used and how and when they will be made available. During the simulated emergency, information, including recommended protective actions for the public within the EPZ, was made available to offsite emergency response organizations and the news media for dissemination. A licensee representative stated that the information brochure would be reviewed and discussed with South Carolina representatives to insure that appropriate information is included. This area will be reviewed during a subsequent inspection (50-395/81-09-04).

### 13. Emergency Facilities and Equipment

This area was observed to insure that adequate emergency facilities and equipment to support an emergency response are provided and maintained as required by 10CFR50.47(b)(8), 10CFR50, Appendix E, paragraph IV.E, and specific criteria in NUREG 0654, Section II.H.

#### a. Operations Support Center

- (1) The OSC communication equipment was installed and operable, however ring lights are needed on each telephone to assist in timely answering with less apparent confusion. (50-395/81-09-05)
- (2) The OSC was not provided with adequate equipment/supplies in accordance with the above criteria. The OSC should be provided with respiratory protection equipment, protective clothing, portable radiation monitoring equipment, portable lighting, and communication equipment for personnel. During the simulated emergency, teams had to proceed to the health physics area, through potentially contaminated or radiation areas to procure the needed equipment. A licensee representative stated that the location of the OSC had recently been changed from the Control Building to the Services Building and that all applicable emergency equipment will be installed in the OSC. This area will be reviewed during a subsequent inspection. (50-395/81-09-06)

- b. Offsite Survey Teams - The equipment and supplies in kits used by the three offsite radiological monitoring teams were adequate. Inventory lists and procedures were in the kits. The inventories were checked prior to leaving the radiological analysis support laboratory at the Parr Facility. Team members noted that the air samplers and instruments were not calibrated and were identified by tags which indicated that these instruments were intended for exercise purposes only. A licensee representative stated that all emergency monitoring equipment will be placed on a periodic calibration and maintenance schedule. This area will be reviewed during a subsequent inspection. (50-395/81-09-07)

### 15 Accident Assessment

This area was observed to insure that adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use as required by 10CFR50.47(b)(9), 10CFR50, Appendix E, paragraph IV.B, and specific criteria in NUREG 0654, Section II.I.

The inspectors observed that the accident assessment program includes, in-plant radiological monitoring, out-of-plant radiological monitoring and

offsite dose calculations. The inspectors observed the TSC dose assessment team making initial offsite dose projections and continuing assessments based on monitor readings and offsite monitoring team results. The in-plant monitoring systems for gas-iodine-particulate radioactivity have not been installed. The program for offsite dose projections appeared inadequate due to the iodine/gas ratio used to project offsite iodine equivalent dose based on the noble gas concentrations. Iodine equivalent doses were not updated using plant vent sample results or offsite team monitoring results. The computer system for dose calculation was functional but could not be used due to the lack of instrument input and programming at the time of the exercise. The accident assessment program will be re-evaluated when the in-plant monitoring systems and the computer system for dose calculations are installed and operational. (50-395/81-09-08)

#### 16. Protective Responses

This area was observed to insure that guidelines for protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for emergency workers including evacuation of nonessential personnel, are implemented promptly as required by 10CFR-50.47(b)(10) and specific criteria in NUREG 0654, Section II.J.

- a. Accountability - The inspector observed a limited evacuation and accountability of onsite workers/players after a Site Emergency was declared. A number of construction workers and other personnel from companies other than SCE&G, onsite at the time of the simulated emergency, did not participate in the evacuation drill. An inspector stated that the evacuation and accountability performed during this exercise did not adequately test the licensee's capability to account for all personnel within a reasonable time after initiation of the evacuation/accountability procedures. A licensee representative stated that the evacuation/accountability procedure would be performed for all onsite personnel prior to plant startup. (50-395/81-09-09)
- b. Evacuation of Owner Controlled Area - During the evacuation of non-essential personnel from the site area an inspector noted that there was no attempt to insure that persons who may be present within the owner controlled area, but outside the plant exclusion area, were informed of the simulated potential radiation hazard. Licensee representatives stated that this area, owned by SEC&G, was not usually occupied and that fishing and hunting were prohibited in that area, but agreed that some actions to insure no one was present in the area would be appropriate. The licensee agreed to include such a procedure in preplanned protective actions. (50-395/81-09-10)

#### 17. Radiological Exposure Control

This area was observed to insure that means for controlling radiological exposures, in an emergency, are established and implemented for emergency



workers and that they include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides as required by 10CFR50.47(b)(11) and specific criteria in NUREG 0654, Section II.K.

The inspectors observed that radiological exposure control programs were implemented during the simulated emergency. The Health Physics specialists exhibited an awareness of the radiological exposure control program during the monitoring of onsite and offsite areas following the simulated radiological emergency, however, during the search and rescue operation an inspector noticed that health physics support was not adequate to prevent possible unnecessary exposure to emergency team members. This is discussed further in paragraph 19.d below.

#### 18. Medical and Public Health Support

This area was observed to insure that arrangements are made for medical services for contaminated injured individuals as required by 10CFR-50.47(b)(12), 10CFR50, Appendix E, paragraph IV.E, and specific criteria in NUREG 0654, Section II.L.

Onsite actions to provide first aid for the simulated injured person as well as his transportation to and subsequent treatment at the participating hospital were observed. There was good coordination between the onsite emergency response organization and the offsite support groups involved in this portion of the exercise. The inspector noted that ambulance personnel and some hospital personnel did not appear to be familiar with contamination control practices. This was attributed to insufficient training and is discussed further in paragraph 19.e below.

#### 19. Radiological Emergency Response Training

This area was observed to insure that radiological emergency response training is provided to those who may be called on to assist in an emergency as required by 10CFR50.47(b)(15), 10CFR50, Appendix E, paragraph IV.F, and specific criteria in NUREG 0654, Section II.O

- a. Repair/Corrective Action Team - During the exercise, when the repair team attempted a simulated repair of the relief valve that failed open, the NRC inspectors observed that the preplanning at the TSC was good for the repair work, but the repair teams were routed through a simulated 300 millirem per hour area going to and from the valve area whereas an alternate route through the turbine building would have taken them to the valve work area with an exposure of about one millirem per hour. The failure to recognize and plan for elevated radiation levels was attributed to incomplete training of the emergency response personnel. A licensee representative stated that additional training would be provided to emergency team members. (50-395/81-09-11)

- b. Operations Support Center (OSC) - At the time the OSC was activated, radiation surveys within the center should have been initiated in accordance with Implementing Procedure EPP-21 and good radiation protection practice. The OSC supervisor did not institute surveys within the Center until about 40 minutes after the activation and staffing of the facility. The failure to institute radiation surveys within the OSC was attributed to inadequate training in radiation safety practices. A licensee representative stated that additional training would be conducted for OSC personnel. (50-395/81-09-12)
- c. Monitoring Teams - Offsite monitoring teams, dispatched to sample the river water, following the simulated release of radioactive water from the plant, appeared to be unfamiliar with representative water sampling technique. The water samples from the lake and river were collected at the shoreline without apparent consideration for water depth, mixing currents or flow. An inspector stated that the water sampling team needs additional training in water sampling procedure. (50-395/81-09-13)
- d. Search and Rescue Team - During search and rescue operations, in a simulated high radiation area, the team members repeatedly entered areas of unknown radiation levels without health physics support. The health physics technician assigned to the team had adequate instrumentation and performed surveys as rapidly as practical under the simulated conditions. Team members were apparently unaware of the potential hazard that would exist, in some plant areas, under the accident conditions simulated during the exercise. An inspector noted that emergency team members need additional training in radiation exposure minimization and contamination control measures. A licensee representative agreed and stated that additional training would be provided to all emergency team members. (50-395/81-09-14)
- e. Medical Support Activities - Although the ambulance service and participating hospital cooperating in the emergency exercise had been provided training in handling radioactively contaminated patients, it appeared that some personnel of both the ambulance service and the hospital were not familiar enough with contamination control procedures to effectively transport and treat a contaminated casualty without the spread of some radioactive contamination to unaffected areas. The ambulance service and hospital personnel responded promptly to the simulated emergency and all involved personnel acted efficiently and in a professional manner; however, there is a need for additional training in contamination control procedures for these personnel. A licensee representative stated that additional training would be provided to all appropriate offsite support groups. (50-395/81-09-15)
- f. Exercise Controllers - The inspector's observations indicated that the exercise controllers need to be qualified in specific areas of expertise. Some controllers provided too much information (prompting)

to the operations and support players. Some improvement was noted during the exercise, but the controllers appear to need more training in technique. Observations of some controllers indicated that the controllers were monitoring work outside of their normal work area. A basic knowledge of health physics techniques relative to area monitoring, background values expected, and decontamination practices should be provided to all controllers. The controllers should be familiar with the work locations in various buildings. An inspector stated that the controllers in future exercises should be selected on the basis of experience and that training in exercise participation be provided to all controllers. (50-395/81-09-16)

#### 20. Exercise Critique

The licensee's critique of the emergency exercise was observed to insure that deficiencies identified as a result of the exercise and weaknesses noted in the licensee's emergency response organization were formally presented to licensee management for corrective actions as required by 10CFR50.47(b)(14), 10CFR50, Appendix E, paragraph IV.F, and specific criteria in NUREG 0654, Section II.N.

A formal critique of the emergency exercise was held on May 2, 1981 with all controllers, key exercise participants, licensee management and NRC personnel attending. Deficiencies and weaknesses in the emergency preparedness program, identified as a result of this exercise were presented by licensee personnel during the critique. Essentially all the findings described in this report were identified by licensee personnel during this critique. Followup of corrective actions for the identified deficiencies and weaknesses will be accomplished through subsequent routine NRC inspections.

#### 21. Federal Evaluation Team

The report of deficiencies noted by the Federal Evaluation Team (Regional Assistance Committee and Federal Emergency Management Agency Region IV staff) concerning the activities of offsite agencies during the exercise is included as an attachment to this report.

#### 22. Exercise Evaluation

The inspectors concluded that the emergency exercise demonstrated the licensee's ability to respond to and effectively manage an emergency condition at the V.C. Summer facility, and that the state of emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.



FEDERAL EMERGENCY MANAGEMENT AGENCY  
Region IV 1375 Peachtree Street, N.E. Atlanta, Georgia 30309

MAY 8 1981

Brigadier General George R. Wise  
Director  
Emergency Preparedness Division  
1429 Senate Street  
Columbia, South Carolina 29201

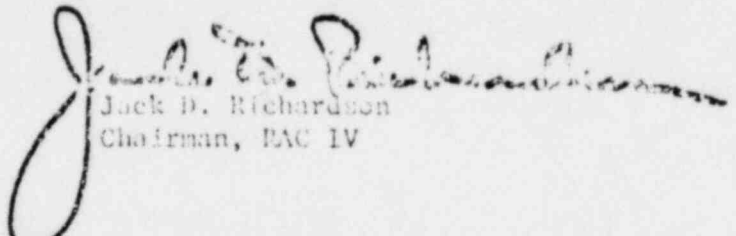
Dear General Wise:

Enclosed is a list of deficiencies noted in the V. C. Summer REP exercise conducted on May 1, 1981. These deficiencies were observed by the Regional Assistance Committee and FEMA IV staff.

We are aware that corrections are currently being made in the V. C. Summer Site-Specific plan as a result of the exercise and the critiques conducted on May 1 and 2, 1981. Thus, at the earliest convenience, please provide the Acting Regional Director with a report on how and when the noted deficiencies will be corrected. Upon receipt of this report, the process of plan review and acceptance may proceed.

We compliment South Carolina for the excellent radiological emergency preparedness effort, and assure you that RAC IV and FEMA IV staff remain committed to future support of REP activities in your State.

Sincerely yours,

  
Jack D. Richardson  
Chairman, RAC IV

Enclosure

cc:  
RAC Members ✓

DEFICIENCIES NOTED  
IN THE  
V. C. SUMMER REP  
EXERCISE  
CONDUCTED AT  
WINSBORO, SOUTH CAROLINA  
MAY 1, 1931

## DEFICIENCIES NOTED IN THE V. C. SUMMER EXERCISE

### 1. Notification and Alerting of Officials and Staff

It appeared that the alerting and notification system at the State Agency level was not fully tested due to the arrival of State agency officials at the State emergency operations center prior to their being notified.

### 2. Notification and Alerting of the Public

A Site emergency was declared at 10:15 a.m. but the EBS system was not activated until 10:50 a.m. Thus, the required time to notify the public was greater than the 15 minutes criteria. The current public alerting and notification system does not meet NUREG 0654/FEMA-REP-1 Rev. 1 criteria. Significant off-site radiation levels existed (simulated for exercise play) and the public was not notified in a timely manner.

### 3. External Communications Capability Between Sites

Telephone problems between DHEC (Columbia) and the site technical center created a delay in information exchange and DHEC's initial evaluation of the off-site situation. Mobile Radiological monitoring team radio "break-down" caused a situation where a monitor may have received excessive exposure.

Telephone communications out of the Lexington County EOC were virtually impossible at certain intervals during the exercise.

### 4. Emergency Operations Center (EOC) Facility (space, comfort, etc.)

The size and location of the forward Emergency Operations Center were adequate but the layout for emergency operations was not optimum. Space allocated to DHEC was too small which resulted in congestion in the DHEC area of operation.

The EOC in Fairfield County was not adequate for emergency operating periods of long duration due to lack of space.

### 5. EOC Internal Communications and Displays (Message Handling, Maps, etc.)

Message handling at the State EOC was difficult. The method of sending runners for information exchange is not sufficient. Perhaps a public address system could alleviate the message handling problem.

There was limited central display of pertinent information at the FEEOC and Fairfield County EOC. Information which is essential to the decision-making process was available only in a fragmental fashion. It was difficult for various State and local agencies to find a summary of the essential information. The initial briefing at the FEEOC did not provide information regarding internal operations, FEEOC layout, and internal communications. Acoustics were very poor. Thus, announcements over the PA system were very difficult to understand. Briefing intervals were probably not realistic.

6. Adequacy of Staffing (Multiple Shifts, Competency, etc.)

No deficiencies noted.

7. Facility Access/Security

No noted deficiencies.

8. Support by Responsible Elected and Appointed Officials

It seemed that agency heads and elected officials relied too heavily upon the CD Director and County Manager in Fairfield County. Support by Richland County elected or appointed officials was not apparent in the EOC as indicated on page 6, paragraph V A (1) of Richland County - City of Columbia (SOP).

9. Direction and Control (timely decision making, management, etc.)

Radiological monitoring missions directed from the mobile lab were not assigned in a timely fashion. The release from the plant occurred at 1200 hours and the air monitoring team was dispatched at 1200 hours. No advice was given the team on exposure rate levels, wind direction, turn back doses or other personal protective measures.

10. Coordination (between officials, agencies, federal agencies, etc.)

While proper direction and control actions were initiated early in the exercise, there seemed to be some confusion and lack of coordination between EPD and DHEC.

11. Emergency Plans (Adherence, SOP's and Checklists Consulted)

No noted deficiencies.

12. Public Information (Interface with News Media)

No noted deficiencies.

13. Accident Assessment (Monitoring, Reporting, Projecting, Coordination)

Accident assessment was good at the mobile laboratory. There seemed to be a problem of prompt reporting of monitoring data. Actual sample collection may be more appropriate than simulation. Monitoring team communications via radio to the mobile lab were not adequate at times. Message "break-up" occurred at distances near the plant site.

14. Protective Actions (Evacuation, Shelter, Reception and Care)

No noted deficiencies.

15. Exposure Control (Access and Traffic Control, Use of KI, Record Keeping)

Advice to monitoring teams to take KI was given, however team members could have been exposed to the plume before taking KI. Information regarding radiation levels was not displayed in Fairfield County EOC. There was no vehicle monitoring and decontamination station established near the mobile laboratory.

16. Recovery and Reentry

Recovery and reentry operations were observed only in the initial stages. No deficiencies were noted.

17. Adequacy of Scenario to Test State and Local Plans

No major deficiencies were noted.

18. Benefit of Exercise to Participants

Radiation level inputs from the scenario seemed to be inconsistent with the exercise sequence of events. Thus, the monitoring teams were confused by controller inputs.

The scenario did not seem to provide enough action for State agencies located at the SEOC. Neither did the scenario provide enough action for Lexington County. Thus, State and local agency personnel did not gain the experience which could have been gained given a greater amount of exercise play.

19. Capability of Observed Jurisdiction, Agency and/or Function to Execute REP Plans to Protect the Public

While improvements are needed, and specific lessons were learned, South Carolina and the affected local counties are capable of executing site-specific REP plans for the V. C. Summer Nuclear station.

The lack of adequate space in the Fairfield County EOC creates difficulty for county officials to implement the county plan.



1 BY MR. GOLDBERG: (Resuming)

2 Q Mr. Kevern, consistent with our practice would you  
3 give a brief summary of your prefiled testimony?

4 A (WITNESS KEVERN) A summary of testimony is as  
5 follows. Based upon the Staff's review, I guess the  
6 criteria in NUREG-0654, Revision 1 dated November 1980, the  
7 Staff concludes that the Virgil C. Summer Nuclear Station  
8 Radiation Emergency Plan upon satisfactory completion of  
9 those items for which the Applicant has made commitments  
10 will provide an adequate planning basis for an acceptable  
11 state of emergency preparedness and will meet the  
12 requirements of 10 CFR Part 50 and Appendix E thereto.

13 Areas in which the Applicant has made commitments  
14 are as follows. There are four of them. One, minimum shift  
15 manning requirements; secondly, emergency response  
16 facilities; thirdly, meteorological and dose assessment  
17 capability; and fourth, alert and notification system.

18 The Staff will assure that these commitments are  
19 implemented in a satisfactory manner prior to the completion  
20 dates with a note that some of these completion dates may be  
21 later than the date of the issuance of the operating  
22 license for the facility.

23 The final NRC approval of the state of emergency  
24 preparedness for the Summer site will be made following  
25 review of the findings and determinations made by FEMA on

1 state and local emergency response plans and review of the  
2 joint exercise held to demonstrate the capability to  
3 implement the Applicant's state and local plans.

4           Subsequent to my preparation of this testimony,  
5 the Staff evaluated the joint emergency preparedness  
6 exercise which is a document in Office of Inspection and  
7 Enforcement Report No. 50-395/81-09, which is attached to my  
8 testimony as Attachment D.

9           A summary of that evaluation report is as  
10 follows. The inspectors concluded that the joint  
11 radiological emergency preparedness exercise demonstrated  
12 the Licensee's, or Applicant's rather, ability to respond to  
13 and effectively manage an emergency condition at the V.C.  
14 Summer facility, and that the state of emergency  
15 preparedness provides reasonable assurance that adequate  
16 protective measures can and will be taken in the event of a  
17 radiological emergency.

18           Also, subsequent to the preparation of my  
19 testimony, the NRC Staff received the preliminary favorable  
20 determinations by FEMA on the state and local emergency  
21 response plan.

22           That concludes my summary.

23           Q     Mr. Kevern, also as part of your review of the  
24 station emergency plans did you prepare Appendix A to the  
25 Supplement No. 2 to the Staff safety evaluation report which

1 is in evidence as Staff Exhibit 1 and is entitled "Emergency  
2 Preparedness Evaluation Report for Virgil C. Summer Nuclear  
3 Station Unit 1?"

4 A (WITNESS KEVERN) That is correct.

5 Q Do you have any corrections you wish to make to  
6 that document -- I am sorry -- to that appendix to that  
7 document?

8 A (WITNESS KEVERN) I do not.

9 Q Do you adopt it as part of your direct testimony  
10 in this proceeding?

11 A (WITNESS KEVERN) I do.

12 Q Mr. Richardson, do you have before you a copy of  
13 your prefiled testimony in this proceeding?

14 A (WITNESS RICHARDSON) I do.

15 Q Do you have any corrections you wish to make to  
16 the document?

17 A (WITNESS RICHARDSON) Yes.

18 Q Could you please make those?

19 A (WITNESS RICHARDSON) On the first page under the  
20 answer there, "the Acting Regional Director," strike  
21 "Regional." I appreciate the promotion, but my boss might  
22 not.

23 Also, under question 2, the answer there, strike  
24 "regional."

25 And I am assuming that you have the marked up copy

1 of the testimony. Please look at page 7. On your copies  
2 there is some written in material.

3 Q No, there is not. If you have some additions,  
4 please make those now.

5 A (WITNESS RICHARDSON) All right.

6 Under "NUREG-0654 provides that" add where  
7 "radioprotective drugs shall be made available" insert "by  
8 the Licensee to emergency workers" and insert that "state  
9 and local government plans include persons whose ability to  
10 evacuate the EPZ is impaired," insert "the plans to do so  
11 should be described."

12 Strike "FEMA" and insert "FDA is currently  
13 studying the effectiveness of radioprotective drugs as a  
14 protective action measure for persons within the EPZ" insert  
15 "at the request of the Federal Radiological Preparedness  
16 Coordination Committee."

17 Down close to the bottom of that paragraph, "the  
18 Veterans Administration on centralized reasonable storage of  
19 KI individual doses for emergency workers" and strike "the,"  
20 insert "any other persons," insert "to which KI will be made  
21 available under NUREG-0654 guidelines."

22 Page 9 in the answer under question 17, the final  
23 sentence, "I am unaware of any special circumstances,"  
24 insert "under which the federal government," strike "which  
25 would require a substantially larger or smaller EPZ."

1           If you will go to the next sentence ending with  
2 "public comment," add "an extensive study by an NRC/EPA task  
3 force in 1978."

4           In the final sentence after "Federal Emergency  
5 Management Agency," insert "the Environmental Protection  
6 Agency."

7           That is all the changes I have.

8           MR. GOLDBERG: By the way, Judge, for the benefit  
9 of the Board and parties, I have stricken the question,  
10 question 21 and answer 21 which appear on page 11 and 12 of  
11 Mr. Richardson's prefiled testimony.

12           BY MR. GOLDBERG: (Resuming)

13           Q     Mr. Richardson, is there a statement of your  
14 professional qualifications attached?

15           A     (WITNESS RICHARDSON) Yes, there is.

16           Q     Do you have any corrections you wish to make to  
17 that?

18           A     (WITNESS RICHARDSON) I do not.

19           Q     As corrected is the prefiled testimony and  
20 statement of your qualifications correct?

21           A     (WITNESS RICHARDSON) Yes, it is.

22

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24

25

1 Q Do you adopt it as your testimony and statement of  
2 professional qualifications for the purposes of this  
3 hearing?

4 A (WITNESS RICHARDSON) Yes, I do.

5 MR. GOLDBERG: At this time, Judge, I would like  
6 to move that the prefiled testimony of Mr. Richardson and  
7 his attached professional qualifications be received in  
8 evidence and bound into the record as if read.

9 CHAIRMAN GROSSMAN: Mr. Bursey?

10 MR. BURSEY: No objections.

11 CHAIRMAN GROSSMAN: Mr. Knotts?

12 MR. KNOTTS: No objection.

13 CHAIRMAN GROSSMAN: Mr. Wilson?

14 MR. WILSON: No objection.

15 CHAIRMAN GROSSMAN: Admitted.

16 (The document referred to, the prefiled testimony  
17 and professional qualifications of Mr. Richardson, follows:)

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7/15

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
SOUTH CAROLINA ELECTRIC & GAS	)	Docket No. 50-395
COMPANY	)	
Virgil C. Sumner Nuclear Station,	)	
Unit 1	)	

TESTIMONY OF JACK D. RICHARDSON ON INTERVENOR  
BURSEY CONTENTION 8 AND FAIRFIELD UNITED ACTION  
CONTENTIONS 7, 9, 10, 11 AND 12\*

Q.1. Could you please state your name, place of employment and professional qualifications?

A. My name is Jack D. Richardson. I am employed by the Federal Emergency Management Agency (FEMA) as the Acting ~~Regional~~ Director, Plans and Preparations (P&P) Division, Region IV and as Chairman of the Regional Assistance Committee (RAC), Region IV. A copy of my professional qualifications is attached (Attachment B).

Q.2. Could you briefly describe the responsibilities of your position with FEMA?

A. As the Acting ~~Regional~~ Director P&P Division, Region IV, I am in charge of all radiological emergency preparedness, personnel and planning within the southeastern Federal

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\* See statement of these Contentions in Attachment A.

region. As the regional assistance committee chairman for Region IV I coordinate the review and technical assistance to States within FEMA Region IV on matters involving radiological emergency preparedness. I have at my disposal personnel from several Federal agencies who assist in review and technical assistance.

Q.3. Could you briefly describe your role with respect to the review of emergency planning for the Summer nuclear plant?

A. As the Regional Assistant Committee chairman I coordinated the review of the State and local off-site emergency planning for the Summer Plant and participated as an observer in the exercise of those plans. As the Acting Director, Plans and Preparedness, Region IV, FEMA, I am responsible for assisting State and local governments to insure that the off-site radiological emergency preparedness at the Summer Plant is adequate to protect the general public. Technical assistance that is not available within the State or local governments can be obtained through the talents of personnel in the RAC.

Q.4. Intervenor Bursey Contention 8 asserts that the Applicant has made inadequate preparations for the implementation of its emergency plan in those areas where the assistance and cooperation of state and local agencies are required. Does the witness have a position on this matter?



A. Yes. After an extensive review of the State disaster operations plan, radiological preparedness sections, and observation of the May 1, 1981, exercise of the State plan, I feel that the plan when used to protect the public in a case of a general emergency at the Summer Plant would be effective in reducing injury or hardship to local citizens and is capable of being implemented with a few minor exceptions and deficiencies which have been noted to responsible State officials. The limited number of deficiencies noted in the exercise indicates that the applicant and the State and local governments have engaged in extensive coordination of their plans.

Q.5. Could you briefly describe the nature of the emergency exercise conducted at the plant on May 1 to which you refer?

A. On May 1, 1981, the applicant, the State of South Carolina, and local governments in the area surrounding the Summer Nuclear Power Plant exercised their radiological emergency preparedness plans. This was a substantial exercise involving all major components of the emergency response forces. It provided for a real time review of individuals and organizations in their knowledge and abilities to protect the public in the case of a general emergency.

Q.6. Could you briefly state the results of FEMA's evaluation of the emergency exercise?

A. In my letter of May 8, 1981 (Attachment C), I have provided to Brigadier General George P. Wise, Director, Emergency Preparedness Division, State of South Carolina, a list of deficiencies which were observed during the exercise. If the State corrects these deficiencies, I would have no reason to believe that the plan could not be implemented as well, if not better than the exercise.

Q.7. Could you please explain the objective in bringing these deficiencies to the attention of the state?

A. Deficiencies noted during the exercise and provided to General Wise are a basis for obtaining improvements in the state emergency planning capability. The planning process for radiological emergency preparedness is a continuous one and deficiencies noted are provided for the purpose of improving the planning in order to improve the protection provided to the public in the case of a general emergency.

Q.8. Could you explain the nature of the actions required to address these deficiencies?

A. Deficiencies noted in my May 8, 1981 letter to General Wise concerning deficiencies in the May 1, 1981 exercise of the State disaster operations plan will be reviewed by members of the RAC and the State of South Carolina. Members of the RAC with specific expertise in areas such as communications, transportation and radiological monitoring will be made

available to the State of South Carolina on an as needed basis for the purpose of assisting in upgrading their plan to correct noted deficiencies.

Q.9. With respect to Fairfield United Action (FUA) Contention 7, I understand that you are only offering testimony on subparts (c), (d), (f), (g), (h), (j), (k), (q), (r), (s), and (t) thereof. Is that correct?

A. Yes.

Q.10. FUA Contention 7(c) asserts that the Applicant has failed to demonstrate the ability to notify local emergency preparedness officials within 15 minutes. Does the witness have a position on this?

A. In the event of a general emergency the applicant will notify the State Department of Health and Environmental Control and the county Emergency Operations Centers (EOC) via dedicated telephone lines. The EOC's will contact the county civil defense directors, who will provide notification to county emergency preparedness officials as necessary. The EOC communications centers are manned 24 hours per day, 365 days per year and are in some cases colocated with other police and/or fire department communications facilities. The alert notification system for the general public will be activated by county officials notified by the EOC in each county. As noted in paragraph 2 of the May 8, 1981 report on exercise

deficiencies, the time between site emergency declaration and EBS activation exceeded the NUREG-0654 guidelines. The State of South Carolina is working to improve the time.

- Q.11. FUA Contention 7(d) asserts that the Applicant has not adequately planned for the distribution of informational materials. Does the witness have a position on this?
- A. The applicant has financed the development and distribution of a public education brochure for residents of the 10 mile EPZ. The brochure provides information on recommended individual courses of action in the event of a general emergency at the Summer Nuclear Power Plant.
- Q.12. FUA Contention 7(f) asserts that the Applicant has failed to provide adequate means for protecting those whose lack of mobility is impaired by lack of vehicles. Does the witness have a position on this?
- A. The State and local plans provide for utilization of available buses and county vehicles for the evacuation of citizens without private vehicles. In cases of need for additional transportation, private vehicles will be pressed into action.
- Q.13. FUA Contention 7(g) asserts that no plans have been made for the distribution and use of radioprotective drugs, such as potassium iodide (KI), as a protective response for the general public. Does the witness have a position on this?

A. No plans have been made for distribution to the general public of radioprotective drugs such as KI. NUREG-0654 provides that <sup>where</sup> radioprotective drugs shall be made available <sup>By THE Licensee</sup> to emergency workers and persons whose ability to evacuate the EPZ is <sup>That STATE and LOCAL government plans include</sup> impaired <sup>the plans to do so should be DESCRIBED.</sup> FEMA <sup>FOA</sup> is currently studying the effectiveness of radioprotective drugs as a protective action measure for <sup>at The Request OF The Federal Radiological Propandness</sup> persons within the EPZ <sup>Coordinating</sup>. Additionally, NRC has requested that <sup>Committee.</sup> the Food and Drug Administration and FEMA conduct extensive studies into the utilization and distribution of KI to the general public as a protective action measure. The results of these studies are not yet available. Discussions are currently being conducted between the Federal Emergency Management Agency and the Veterans Administration on centralized regional storage of KI individual doses for emergency workers <sup>and any other</sup> <sup>which KI will be made available under</sup> ~~and the persons to~~ <sup>covered by</sup> NUREG-0654 guidelines. The State plan is currently in accordance with NUREG-0654 guidance.

Q.14. FUA Contention 7(h) asserts that relocation centers are not located at least 5 miles from the Plume Exposure Pathway Emergency Planning Zone (EPZ) in that the Winnsboro High School is a scant 2-3 miles from the EPZ. It is further asserted that all of the relocation centers in Fairfield County are within 10 miles of the EPZ. Does the witness have a position on this?

A. After extensive study and public comment NUREG-0654 established a preliminary EPZ for areas surrounding nuclear power plants at 10 miles, except in those cases where specific circumstances

require a larger EPZ. I am unaware of any special circumstances which would require the EPZ around the Summer Nuclear Power Plant to be larger than that required by NUREG-0654. The relocation centers in all cases are located beyond the EPZ and therefore, barring any special circumstances which have not yet been brought to my attention, the centers should be in the safe zone. Those centers and functions which have been located in close proximity to the EPZ, have been pointed out to the State of South Carolina and South Carolina officials have assured me that they will consider relocating the centers to safer locations.

Q.15. FUA Contention 7(k) asserts that hospital and medical services for the general public are not provided for. Does the witness have a position on this?

A. The State plan identifies 22 hospitals in the State as being capable of handling radiologically contaminated patients. The plan lists hospitals which can receive and process for further treatment specific cases of radiological contamination. Minor cases of contamination will be treated by showers and new clothing, while more serious cases will be treated by medical personnel in local hospitals and transfer to regional medical centers as necessary.

Q.16. FUA Contention 7(q) asserts that the Applicant and local plans

demonstrate a lack of cooperation in their development and planned implementation. Does the witness have a position on this?

A. As a result of the May 1, 1981, exercise of the State and local plans it is apparent that the applicant and the State and local governments have coordinated their activities in planning to the degree that the deficiencies were limited to those noted in my May 8, 1981 letter to Brig. Gen. George R. Wise, Director, Emergency Preparedness Division, State of South Carolina. Deficiencies that were noted are being corrected by further coordination, which is being assisted by members of the FEMA, Region IV, RAC.

Q.17. FUA Contention 7(r) asserts that the Plume Exposure Pathway EPZ boundaries established in local plans are not based upon reasonable criteria which have been explicitly stated and demonstrated. Does the witness have a position on this?

A. The EPZ boundaries utilized by the State are in accordance with NUREG-0654 and are based upon local conditions and topography. *under which The Federal Government*  
I am unaware of any special circumstances *which* would require a *substantially* larger or smaller EPZ in the case of the Sumner Nuclear Power Plant. The EPZ criteria in NUREG-0654 were established after *and extensive study by an NRC/EDA TASK FORCE in 1978.* notice and public comment. It is my understanding that it is based on technological and practical considerations, thoroughly *The Environmental Protection Agency* researched by the Federal Emergency Management Agency and the Nuclear Regulatory Commission.

Q.18. Contention 7(s) asserts that the failure to base Plume Exposure Pathway EPZs on ration 1 and scientifically defensible bases which give reasonable assurance that the health and safety of the public will be protected exposes students at Kelly Miller Elementary School and Greenbrier Head Start Center in Fairfield County to unwarranted risks to their health and safety. Does the witness have a position on this?

A. As stated in the previous answer, the Plume EPZ for the Summer Nuclear Power Plant was established in accordance with the criteria set forth in NUREG-0654 and determined to be applicable by the absence of special circumstances in the area surrounding the Summer Nuclear Power Plant. Kelly Miller Elementary School and the Greenbrier Headstart Center are beyond 10 miles from the plant. The students in these educational facilities, as well as other members in the general public in the surrounding area, have been considered in the Fairfield County emergency action plan which is a component of the State disaster operations plan. As indicated by my report of May 8, 1981, on deficiencies noted as a result of the May 1, 1981, exercise of the State emergency disaster plans, no special difficulties in protecting health or safety of individuals in these two schools were noted as a result of the exercise. State and local officials, at the request of FEMA, are considering additional emergency planning for these institutions.



Q.19. Contention 7(t) asserts that the Applicant, state and local plans otherwise fail to comply with some unspecified requirements not set forth therein. The basis for this Contention in the FUA intervention petition is that the final plans have not been available to FUA members from the four counties. Does the witness have a position on this?

A. As noted in the public announcements for the April 30, 1981, public meeting conducted in Monticello, South Carolina, the plans referred to in the intervenor's contention were made available to the general public, without charge, for review and study at several locations within close proximity to the Summer Nuclear Power Plant.

Q.20. FUA Contention 9 asserts that the State of South Carolina and the counties surrounding the Summer station do not have the capability for implementing protective measures based upon protective action guides and other criteria as they apply to residents of the Plume Exposure Pathway who do not own or have access at all times to private vehicles. Does the witness have a position on this?

A. This Contention is analogous to Contention 7(f) and, therefore, my answer is the same as that to question 12.

Q.21. FUA Contention 10 asserts that the Applicant, State and local plans have been formulated without reference to the Supplement to the Draft Environmental Statement (NUREG-0534) and thus fail

to address appropriate protective measures needed to provide radiological protection to all residents in the vicinity of the Summer station who might be threatened with injury or death from an accident greater than a design basis accident. Does the witness have a position on this?

- A. Scenarios or accidents of magnitudes greater than design basis accidents were considered in the development of NUREG-0654/FEMA-REP-1 Rev. 1. State and local emergency planning is based on NUREG-0654 and contemplates public protection in greater than design basis accidents.

- Q.22. FUA Contention 11 asserts that the Applicant and the surrounding counties do not possess the experience and technical ability adequately to plan for emergency preparedness, to prepare for a radiological emergency, or the capability for implementing protective measures based upon protective action guides and other criteria as required under NUREG-0654, Rev. 1, at II.J.9. Does the witness have a position on this?

- A. The State and counties, with the assistance of the Federal Emergency Management Agency and the several agencies which contributed technical assistance to the RAC have coordinated in preparing the planning which was exercised on May 1, 1981. Deficiencies noted in the May 1 exercise have been referred to the State for correction. Federal technical assistance has been and will be made available to State and local officials in

upgrading plans on a continuous basis in order to protect the health and safety of individuals living in the EPZ. Training of emergency workers has been conducted by the State and Federal governments as part of a continuing program. In the event of a general emergency at the Summer Plant Federal technical assistance will be available to assist less technically qualified State and local officials in making determinations which only the State and local governments have authority to make. It is assumed that local officials will receive interpreted technical information from several sources in making non-technical emergency decisions for the protection of the general public.

- Q.23. FUA Contention 12 asserts that the Applicant and the surrounding communities lack Radiological Emergency Response plans which would permit quick and adequate response to an accident involving the transportation of radioactive wastes, especially irradiated fuel assemblies. Does the witness have a position on this?
- A. State officials indicate that they consider both of their radiological emergency plans (non-operational and operational) for commercial nuclear power plants to have application and relevance to transportation accidents involving radioactive materials. While FEMA is preparing State and local government planning guidance for transportation accidents, this is not being done to meet our responsibilities for commercial nuclear

power plant preparedness. NUREG-0654/FEMA-REP-1 does not address transportation accidents involving radioactive materials. Therefore, our review and approval of State and local emergency plans for the Summer nuclear power plant does not encompass emergency plans for transportation accidents involving radioactive materials.

The planning guidance mentioned is being prepared by a Federal Task Force on Transportation Accidents co-chaired by FEMA and the Department of Transportation. The Task Force also has members from the Departments of Energy, Health and Human Services, and the Environmental Protection Agency and the Nuclear Regulatory Commission.

A draft document was prepared by the Task Force and reviewed by persons representing the State of Colorado, the Interorganizational Advisory Committee (consisting of representatives of the Conference of Radiation Control Program Directors, the National Emergency Management Association and the U.S. Civil Defense Council), Sandia National Lab., the Southern States Energy Board and the Western Interstate Energy Board.

A new draft is being prepared based upon this review. This draft will be distributed to the organizations mentioned and to others upon request. A final document is expected in September, 1981.

As we have stressed repeatedly in the past, most emergency response functions are independent of the agent causing the

accident or the response. It is only the unique characteristics of the hazardous substance which requires special care. Therefore, normal emergency response forces could be activated and isolate accident areas regardless if the hazardous agent is a radioactive material or a hazardous chemical. Experts would then be called in to analyze the situation.

This is not to say that all responders should not have some knowledge of the hazardous material with which they are dealing. Ideally, they should be knowledgeable in all such materials. Until such time that FEMA can formalize and provide specific training in radioactive materials to all such responders, however, FEMA encourages that members of State and local response teams avail themselves of training programs which currently exist. One of these is a course which is designed around a series of accident scenarios to which the students respond. One such accident is a simulated transportation accident involving a burning truck which contains radioactive material. Eighteen people from Columbia (located in Richland County) have already attended this course and one person from Fairfield County has attended. Nine more individuals from Columbia are scheduled to attend during the remainder of FY-81.

ATTACHMENT A

Contention 7

The Emergency Response Plans of the Applicants, the surrounding counties, and the State of South Carolina do not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency and do not conform to the requirements of NUREG 0654, Rev. 1, in that:

a) (II.B.1.) The Applicants plan does not meet the minimum staffing requirements as set forth in Table B-1.

b) (II.B.9.) The Applicants's plan includes agreements with local organizations which fail to delineate the authority, responsibilities, and limits on their actions.

c) (II.E.1.) The Applicants have failed to demonstrate the ability to notify local Emergency Preparedness officials, as distinguished from communications centers, within 15 minutes.

d) (II.G.1.) The Applicants have not adequately planned for the distribution of informational materials.

e) (II.J.8 and Appendix 4.) The Applicant has not developed realistic estimates of evacuation times and has not employed the methodology set forth in Appendix 4.

f) (II.J.10.c.) The Applicants have failed to provide adequate means for protecting those whose lack of mobility is impaired by lack of vehicles.

g) (II.J.10.e.) No plans have been made for the distribution and use of radioprotective drugs, such as Potassium Iodide, as a Protective Response for the general public.

h) (II.J.10.h.) Relocation centers are not located at least 5 miles from the Plume Exposure Pathway EPZ, e.g., Winnsboro High School is a scant 2-3 miles from the EPZ. All of the relocation centers in Fairfield County are within 10 miles of the EPZ.

i) (II.J.10.) Table 6.2 in Applicant's Plan suggests that sheltering is the only Protective Action contemplated for the general public.

j) ((II.J.10.M.) The plans do not set forth the bases for the choice of recommended Protective Actions from the plume exposure pathway during emergency conditions.

k) (II.L.1.) Hospital and medical services for the general public are not provided for.

l) (II.L.2.) On-site emergency first aid capability is inadequate.

m) (II.G.3.b.) The News Media Center is not located at the Applicant's Emergency Operations Facility.

n) (II.H.2.) The Interim Emergency Operations facility does not comply with the requirements of NUREG 0696, Rev. 1.

n) (Appendix 2.) The Applicant's meteorological monitoring equipment does not meet the requirements of Appendix 2. It lacks a viable back-up system with emergency power and is not seismically qualified.

o) (Appendix 3.B.2.) The Applicant has failed to demonstrate that its siren system will meet the requirements of Appendix 3, that the tests conducted by the Applicant on audibility were sufficient, and that the siren system to be installed has a high level of reliability including under seismic conditions which might occasion a radiological

emergency.

p) (Appendix 4.) The Applicant has failed to comply with the requirements of Appendix 4 for determining and describing evacuation times, has failed to establish the acceptability of criteria used to establish evacuation times, and has failed to demonstrate the capability of Applicant and State and local governments to assure timely evacuation under accident conditions.

q) Applicant's and local plans demonstrate a lack of cooperation in their development and planned implementation.

r) The Plume Exposure Pathway EPZ boundaries established in local plans are not based upon reasonable criteria which have been explicitly stated and demonstrated.

s) The failure to base Plume Exposure Pathway EPZs on rational and scientifically defensible bases which give reasonable assurance that the health and safety of the general public will be protected exposes students at Kelly Miller Elementary School and Greenbrier Head Start Center in Fairfield County to unwarranted risks to their health and safety.

t) And in other ways the Radiological Emergency Response Plans of the Applicant, the State of South Carolina, and the surrounding counties fail to comply with the requirements set forth therein.

#### BASIS FOR CONTENTION 7

Petitioner and its members possess unique knowledge of the people, roads, traffic patterns, and topography of Fairfield County and nearby communities and would assist the Licensing Board to build a record on the adequacy of emergency planning for the region.



In addition to bases offered in the statement of the contention, Petitioner would show that: (bases are listed by sub-contention letter)

a) Applicant's Table B-1 sets forth that Applicant would be unable to provide back-up support for several functions within the required thirty minutes. That the Chemistry/Radiochemistry function would not be staffed at all times.

d) Applicant plans only to mail informational materials to every postal holder. Many mail addresses in the area serve several households, so that a single "Occupant" mailing to each postal box would not reach every household. Posting of informational materials in local businesses will not sufficiently supplement inadequate mailings. Additional distribution methods should be required.

k) Arrangements for medical services at the Pinner Clinic in Fann, South Carolina, and Richland Memorial Hospital in Columbia, South Carolina, apparently apply only to employees of the Applicant and not to the general public.

l) Applicant's plan calls for only one person qualified in first aid techniques on each shift. Injury to that person or accident conditions requiring first attention to accident control duties could nullify that capability.

n) The Interim Emergency Operations Facility is located on-site. The facility is a temporary office structure which is not engineered for the design life of the plant, does not provide a protection factor equal to or greater than 5, and lacks adequate ventilation protection as required in NUREG 0696, Rev. 1, Table 2.

c) For example. All persons in Fairfield County are expected to evacuate to Winnsboro High School. Under typical wind conditions, that would be the least appropriate response for the majority of persons in the EPZ in Fairfield County. Those in the southern part of the County would be safer evacuating towards the Richland County facility. Those in the northern part of the EPZ would more wisely evacuate to the Newberry County center. No such coordination exists, however.

s) Young persons are especially susceptible to radiation injury. However, the Plume Exposure Pathway EPZ, which extends to nearly 12 miles just north of Kelly Miller School in Fairfield County, swings in to miss including that school in the EPZ by, quite literally, "shouting distance". Kelly Miller is an all-black elementary school. The Green-brier Head Start Center is located nearby and also within view of the EPZ but not included in it.

t) Final plans have not been available to Petitioners from the four counties and the State of South Carolina.

Contention 9

The State of South Carolina and the counties surrounding the Summer station do not have the capability for implementing protective measures based upon protective action guides and other criteria as they apply to residents of the Plume Exposure Pathway who do not own or have access at all times to private vehicles.

BASIS FOR CONTENTION 9

The area within the Plume Exposure Pathway is predominantly rural and no public transportation system exists. Many of the residents of the area are old, sick, or poor and do not have transportation or are without transportation during significant periods of the day. Existing plans in Fairfield County, for example, call for the use of a) school busses when school is not in session, b) vans from the Council on Aging and Community Action Program, or c) city busses brought in from Columbia.

School busses in South Carolina are driven by high school students. If school were not in session, the drivers would not be available. The number of vans is limited and inadequate. The city busses from Columbia could not arrive in time, are unsuited to many of our country roads, and would be driven by drivers unfamiliar with the many nooks and crannies of the county.

Moreover, no door-to-door survey to identify the need has been undertaken. Newspaper ads were placed in the Winnsboro papers asking people who needed transportation to call the Emergency Preparedness Director's office. A good many people in rural Fairfield County do not read. Few

Contention 10

Radiological Emergency Response plans of the Applicant, the State of South Carolina, and the surrounding communities have been formulated without reference to the Draft Environmental Statement, Supplement (NUREG 0534, Supplement) and thus fail to address appropriate protective measures needed to provide radiological protection to all residents in the vicinity of the Summer station who might be threatened with injury or death from an accident greater than a design basis accident.

BASIS FOR CONTENTION 10

During testimony before the ACRS Subcommittee on Electric Power (February 26, 1981), Emergency Coordinator Ken Beale conceded that no reference had been made to the Draft ES in preparing the emergency plans. The first ES which evaluates the environmental impacts of a so-called Class 9 accident, this Supplement should have served as the cornerstone of emergency planning. Instead, it was ignored.

Contention 11

The Applicant and the surrounding counties do not possess the experience and technical ability adequately to plan for emergency preparedness, to prepare for a radiological emergency, or the capability for implementing protective measures based upon protective action guides and other criteria as required under NUREG 0654, Rev. 1, at 11.J.9.

BASIS FOR CONTENTION 11

The capability to plan and carry out protective measures in the event of a radiological emergency presumes the personnel with experience and training in emergency planning and an understanding of the characteristics of radiological effluents and their potential health effects.

The Applicant and the governments of the surrounding counties lack that capability.

Corporate Emergency Coordinator, Ken Beale, of the Applicant, has training and experience as a Health Physicist. His resume reveals neither training nor experience which would qualify him for his current position and responsibilities. His assistant, Site Emergency Coordinator, is totally lacking in any qualifications for a role in emergency planning or any training beyond a brief practicum on nuclear power generation at an elementary level.

Fairfield County Director of Emergency Preparedness admits that he knows nothing about nuclear power or the health effects of radiation.

people in western Fairfield County read the Winnsboro papers. Many people in the area do not have telephone, and for many it is a long-distance telephone call to Winnsboro. Not surprisingly, the ads drew no response.

Contention 12

The Applicant and the surrounding communities lack Radiological Emergency Response plans which would permit quick and adequate response to an accident involving the transportation of radioactive wastes, especially irradiated fuel assemblies. Without such plans, the health and safety of the general public cannot be reasonably assured. The Applicant should not be granted a license to operate the Summer plant until such plans are developed.

BASIS FOR CONTENTION 12

The counties surrounding the Summer station do not have plans for responding to emergencies involving radioactive materials other than at fixed sites. Operation of the Summer plant would require transshipment of low-level wastes and, perhaps at some future date, irradiated fuel assemblies (FSAR 3.8-1 and 2).

The counties lack the ability to respond to an accident involving such materials. No operating license should be granted the Applicant which could result in the movement of such materials until the affected counties are prepared to deal with potential accidents.

STATEMENT OF PROFESSIONAL QUALIFICATIONSJACK D. RICHARDSON

Jack D. Richardson received the B. S. Degree in Education from East Texas College in 1956. Mr. Richardson entered the U. S. Air Force in 1956 and served as a pilot until 1960. From 1960 to 1973, Mr. Richardson served as a Field Consultant and Senior Technical Advisor to Management, System Development Corporation, Santa Monica, California. He served as a Regional Field Officer of the Defense Civil Preparedness Agency and Director of the Field Services Office from 1973 to 1979 when FEMA was formed by executive order of the President.

During 1980 and until the present time, Mr. Richardson served as Chairman of the Region IV Radiological Assistance Committee (RAC) which is composed of members from the following federal agencies/departments:

- Department of Energy
- Department of Transportation
- Environmental Protection Agency
- Food and Drug Administration
- Health and Human Services
- Nuclear Regulatory Commission, and
- U. S. Department of Agriculture

The primary mission of the RAC's is to assist State and local governments in developing, reviewing and evaluating Radiological Emergency plans and preparedness.

Further, in 1981, Mr. Richardson was appointed as Acting Director, Plans and Preparedness Division, FEMA Region IV. Within the responsibilities and authorities delegated by the Regional Director, the Director, Plans and Preparedness Division is charged with the management and direction of plans and preparedness programs and staff. Other than Radiological Emergency Preparedness, the Division's programs include:

- Nuclear Civil Protection Planning
- Radiological Defense, and
- Government Preparedness

All of these programs involve federal funds, and therefore, require effective program direction, coordination and management.



FEDERAL EMERGENCY MANAGEMENT AGENCY  
Region IV 1325 Peachtree Street, N.W. Atlanta, Georgia 30309

MAR 8 1981

Brigadier General George R. Wise  
Director  
Emergency Preparedness Division  
1429 Senate Street  
Columbia, South Carolina 29201

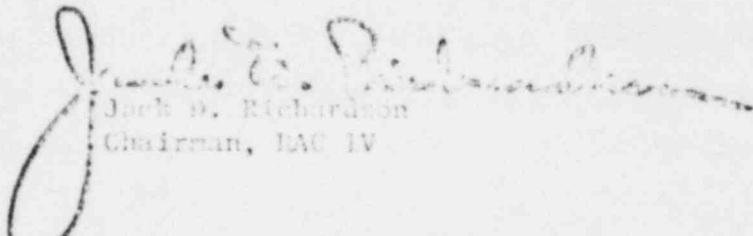
Dear General Wise:

Enclosed is a list of deficiencies noted in the V. C. Summer REP exercise conducted on May 1, 1981. These deficiencies were observed by the Regional Assistance Committee and FEMA IV staff.

We are aware that corrections are currently being made in the V. C. Summer Site-Specific plan as a result of the exercise and the critiques conducted on May 1 and 2, 1981. Thus, at the earliest convenience, please provide the Acting Regional Director with a report on how and when the noted deficiencies will be corrected. Upon receipt of this report, the process of plan review and acceptance may proceed.

We compliment South Carolina for the excellent radiological emergency preparedness effort, and assure you that RAC IV and FEMA IV staff remain committed to future support of REP activities in your State.

Sincerely yours,

  
Jack D. Richardson  
Chairman, RAC IV

Enclosure

cc:  
RAC Members ✓

DEFICIENCIES NOTED  
IN THE  
V. C. SUMMER REP  
EXERCISE  
CONDUCTED AT  
WINSBORO, SOUTH CAROLINA  
MAY 1, 1981

## DEFICIENCIES NOTED IN THE V. C. SUMMER EXERCISE

### 1. Notification and Alerting of Officials and Staff

It appeared that the alerting and notification system at the State Agency level was not fully tested due to the arrival of State agency officials at the State emergency operations center prior to their being notified.

### 2. Notification and Alerting of the Public

A Site emergency was declared at 10:15 a.m. but the EBS system was not activated until 10:50 a.m. Thus, the required time to notify the public was greater than the 15 minutes criteria. The current public alerting and notification system does not meet NUREG 0654/FEMA-REP-1 Rev. 1 criteria. Significant off-site radiation levels existed (simulated for exercise play) and the public was not notified in a timely manner.

### 3. External Communications Capability Between Sites

Telephone problems between DHEC (Columbia) and the site technical center created a delay in information exchange and DHEC's initial evaluation of the off-site situation. Mobile Radiological monitoring team radio "break-down" caused a situation where a monitor may have received excessive exposure.

Telephone communications out of the Lexington County EOC were virtually impossible at certain intervals during the exercise.

### 4. Emergency Operations Center (EOC) Facility (space, comfort, etc)

The size and location of the forward Emergency Operations Center were adequate but the layout for emergency operations was not optimum. Space allocated to DHEC was too small which resulted in congestion in the DHEC area of operation.

The EOC in Fairfield County was not adequate for emergency operating periods of long duration due to lack of space.

### 5. EOC Internal Communications and Displays (Message Handling, Maps, etc.)

Message handling at the State EOC was difficult. The method of sending runners for information exchange is not sufficient. Perhaps a public address system could alleviate the message handling problem.

There was limited central display of pertinent information at the FEOC and Fairfield County EOC. Information which is essential to the decision-making process was available only in a fragmental fashion. It was difficult for various State and local agencies to find a summary of the essential information. The initial briefing at the FEOC did not provide information regarding internal operations, FEOC layout, and internal communications. Acoustics were very poor. Thus, announcements over the PA system were very difficult to understand. Briefing intervals were probably not realistic.

6. Adequacy of Staffing (Multiple Shifts, Competency, etc.)

No deficiencies noted.

7. Facility Access/Security

No noted deficiencies.

8. Support by Responsible Elected and Appointed Officials

It seemed that agency heads and elected officials relied too heavily upon the CD Director and County Manager in Fairfield County. Support by Richland County elected or appointed officials was not apparent in the EOC as indicated on page 6, paragraph V A (1) of Richland County - City of Columbia (SOP).

9. Direction and Control (timely decision making, management, etc.)

Radiological monitoring missions directed from the mobile lab were not assigned in a timely fashion. The release from the plant occurred at 1200 hours and the air monitoring team was dispatched at 1200 hours. No advice was given the team on exposure rate levels, wind direction, turn back doses or other personal protective measures.

10. Coordination (between officials, agencies, federal agencies, etc.)

While proper direction and control actions were initiated early in the exercise, there seemed to be some confusion and lack of coordination between EPD and DHEC.

11. Emergency Plans (Adherence, SOP's and Checklists Consulted)

No noted deficiencies.

12. Public Information (Interface with News Media)

No noted deficiencies.

13. Accident Assessment (Monitoring, Reporting, Projecting, Coordination)

Accident assessment was good at the mobile laboratory. There seemed to be a problem of prompt reporting of monitoring data. Actual sample collection may be more appropriate than simulation. Monitoring team communications via radio to the mobile lab were not adequate at times. Message "break-up" occurred at distances near the plant site.

14. Protective Actions (Evacuation, Shelter, Reception and Care)

No noted deficiencies.

15. Exposure Control (Access and Traffic Control, Use of KI, Record Keeping)

Advice to monitoring teams to take KI was given, however team members could have been exposed to the plume before taking KI. Information regarding radiation levels was not displayed in Fairfield County EOC. There was no vehicle monitoring and decontamination station established near the mobile laboratory.

16. Recovery and Reentry

Recovery and reentry operations were observed only in the initial stages. No deficiencies were noted.

17. Adequacy of Scenario to Test State and Local Plans

No major deficiencies were noted.

18. Benefit of Exercise to Participants

Radiation level inputs from the scenario seemed to be inconsistent with the exercise sequence of events. Thus, the monitoring teams were confused by controller inputs.

The scenario did not seem to provide enough action for State agencies located at the SEOC. Neither did the scenario provide enough action for Lexington County. Thus, State and local agency personnel did not gain the experience which could have been gained given a greater amount of exercise play.

19. Capability of Observed Jurisdiction, Agency and/or Function to Execute REP Plans to Protect the Public

While improvements are needed, and specific lessons were learned, South Carolina and the affected local counties are capable of executing site-specific REP plans for the V. C. Summer Nuclear station.

The lack of adequate space in the Fairfield County EOC creates difficulty for county officials to implement the county plan.

1 BY MR. GOLDBERG: (Resuming)

2 Q Mr. Richardson, could you give a brief summary of  
3 your prefiled testimony?

4 A (WITNESS RICHARDSON) Yes, I can. On December 7,  
5 '79, President Carter by executive order assigned FEMA the  
6 lead federal agency responsibility for offsite radiological  
7 emergency planning and preparedness. This responsibility  
8 required that FEMA chair the Radiological Assistance  
9 Committee for radiological emergency preparedness, and that  
10 the RAC is to assist the state and local governments with  
11 the development of radiological emergency preparedness plans  
12 and preparedness.

13 I chair the RAC for FEMA's Region IV. The RAC,  
14 consisting of members from the Department of Energy, Nuclear  
15 Regulatory Commission, Federal Emergency Management Agency,  
16 Department of Transportation, Environmental Protection  
17 Agency, Health and Human Services, Food and Drug  
18 Administration, and the U.S. Department of Agriculture, has  
19 reviewed in depth state and local REP plans for the V.C.  
20 Summer nuclear station.

21 The RAC, augmented with additional FEMA staff,  
22 observed the comprehensive acceptance exercise of the V.C.  
23 Summer site specific REP plans in May 1981. In the opinion  
24 of the RAC, the site specific plan meets the requirements of  
25 NUREG-0654 with the exception of the early warning and

1 notification system, which is currently being installed.

2           In addition, it is our opinion that state and  
3 local officials are capable of implementing the offsite  
4 radiological emergency preparedness plans for the V.C.  
5 Summer nuclear station.

6           Q       Finally, on June -- by letter dated June 9, I  
7 provided a copy of a memorandum from John A. Dickey of the  
8 Federal Emergency Management Agency to Brian Grimes of the  
9 U.S. Nuclear Regulatory Commission containing FEMA's  
10 findings and determinations relating to the status of state  
11 and local emergency preparedness for the V.C. Summer nuclear  
12 power station.

13           I have marked that as Staff Exhibit 5 and, with  
14 what I understand to be the stipulation of the parties,  
15 would move that it be received in evidence as Staff Exhibit  
16 5.

17           CHAIRMAN GROSSMAN: Any objection, Mr. Bursey?

18           MR. KNOTTS: No.

19           CHAIRMAN GROSSMAN: Mr. Wilson?

20           MR. WILSON: No.

21           CHAIRMAN GROSSMAN: Admitted.

22                                   (The document referred to was  
23 marked Staff Exhibit No. 5  
24 for identification and was  
25 received in evidence.)

1 MR. GOLDBERG: At this time, Judge, I have no  
2 further questions and these individuals are available for  
3 cross-examination.

4 CHAIRMAN GROSSMAN: Mr. Bursey.

5 (Pause.)

6 CROSS-EXAMINATION

7 BY MR. BURSEY:

8 Q Mr. Kevern -- let me retract that. I think that  
9 this is -- should be addressed to Mr. Richardson.

10 Mr. Richardson, you were present during the May 1  
11 drill?

12 A (WITNESS RICHARDSON) Yes, I was.

13 Q And I believe that you noted in your summary and  
14 in your prefiled testimony that there was some deficiency in  
15 the early warning system?

16 A (WITNESS RICHARDSON) Yes, I did.

17 Q Can you explain the nature of the deficiency,  
18 please, sir?

19 A (WITNESS RICHARDSON) Well, the system that is  
20 currently being proposed by the utility was not intact at  
21 the time we ran the exercise and that is the reason that we  
22 took the position that it did not meet the requirements of  
23 0654.

24 Q In a document that apparently came from FEMA that  
25 -- let me get the caption.



1 (Pause.)

2 Q It is bound behind the Grimes letter, and it  
3 speaks to deficiencies in the drill.

4 MR. GOLDBERG: Judge, can we clarify for the  
5 record. Is Mr. Bursey referring to what has just been  
6 admitted as Staff Exhibit 5? That is a June 1, 1981,  
7 memorandum from Mr. Dickey to Mr. Grimes.

8 (Pause.)

9 MR. GOLDBERG: Mr. Bursey, are you talking about  
10 an attachment to Mr. Richardson's May 8th letter to Mr.  
11 Wise?

12 MR. BURSEY: I believe that is right. I have it  
13 filed separately from the prefiled testimony, but it appears  
14 to be the same thing.

15 DR. HOOPER: Mr. Bursey, could you read us the  
16 label on what you are talking about? What does it say on  
17 the document, so we can follow it?

18 MR. BURSEY: "Deficiencies Noted at the V.C.  
19 Summer Radiological Emergency Program Exercise Conducted at  
20 Winnsboro, South Carolina."

21 DR. HOOPER: Thank you.

22 MR. BURSEY: And it is the first page, item 2.

23 MR. GOLDBERG: By the way, just for the record,  
24 that is attachment C to Mr. Richardson's prefiled  
25 testimony.

1 BY MR. BURSEY: (Resuming)

2 Q In the previous testimony by the emergency  
3 coordinator of the Applicant, he took issue with the  
4 substance of this item 2. And the difference of opinion  
5 seems to lie in the question of when significant offsite  
6 radiation levels existed and the public not being notified  
7 in a timely manner.

8 Can you expand a little bit on the deficiencies  
9 cited in item 2?

10 A (WITNESS RICHARDSON) I think I can. I observed  
11 the exercise at the state forward EOC and was aware at the  
12 time that the plant notified the -- I think DHEC and also  
13 emergency preparedness. And what we were waiting on was the  
14 final notification to the public on that.

15 The state has responded to our critique item and I  
16 would like to indicate what that response is:

17 "The 10:15 a.m. site emergency notification from  
18 the V.C. Summer plant indicated no offsite readings and no  
19 projected releases to DHEC. Therefore, no protective  
20 actions were required. The provisions listed in Appendix 1,  
21 NUREG-0654, do not require the activation of the public  
22 notification system at that time. In the future the public  
23 information will be released over the emergency broadcasting  
24 system under any situation of a site emergency within 15  
25 minutes after notification, to perform on the safe side."

1                   That was the state's response to our observation.

2                   (Pause.)

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1 Q Do you agree with that? If I understood you that  
2 the state is saying that the time sequences were within  
3 NUREG guidelines and that your deficiencies cite that the  
4 public was not notified in a timely manner, there is still a  
5 conflict I am not resolving.

6 A (WITNESS RICHARDSON) I believe the difficulty  
7 that we had in that, Mr. Bursey, was a scenario problem in  
8 terms of some canned inputs. As I recall, the way the  
9 exercise was designed, I do feel like that the capability to  
10 notify the public will be there once the system is installed.

11 Q Let me ask you, Mr. Kevern, about some planning  
12 bases that are drawn from -- either one of you may respond  
13 to this. This is the 0654 document that I believe both FEMA  
14 and the Nuclear Regulatory Commission -- your names are both  
15 on the cover. I'm not sure who to attribute the document  
16 to.

17 But in regards to the planning basis for worst  
18 possible accidents, I am trying to get a better  
19 understanding of what the state and local agencies are  
20 supposed to rely on for their planning, and page 7 of 0654  
21 -- do you have copies of that?

22 A (WITNESS KEVERN) Yes.

23 MR. BURSEY: Is the Board ready to proceed?

24 CHAIRMAN GROSSMAN: Yes.

25 BY MR. BURSEY:

1 Q Page 7, and the first full sentence states:  
2 "Rather it identifies the bounds of the parameters for which  
3 planning is recommended based upon knowledge of the  
4 potential consequences, timing and release characteristics  
5 of a spectrum of accidents." And then the last paragraph on  
6 the page: "Information on the time frames of accidents is  
7 also important. The time between the initial recognition at  
8 the nuclear facility that a serious accident is in progress  
9 and the beginning of the radioactive release to the  
10 surrounding environment is critical in determining the type  
11 of protective actions which are feasible."

12 And the next sentence is: "Knowledge of the  
13 potential duration of release and the time available before  
14 exposures are expected several miles offsite is important in  
15 determining what specific instructions can be given to the  
16 public."

17 Is that an accurate representation of the planning  
18 basis?

19 A (WITNESS KEVERN) You are quoting from 0654. I  
20 would say that is an adequate interpretation.

21 Q Now, am I to understand that this is the planning  
22 basis that the state and local agencies are to have hung  
23 their emergency plans on?

24 A (WITNESS RICHARDSON) That is correct.

25 Q And if the state and local agencies were unaware

1 of the parameters of potential consequences, the sequences,  
2 the timing, the release characteristics of these accidents,  
3 then one could infer that their planning really could not be  
4 adequate in order to determine what specific instructions  
5 can be given to the public; is that right?

6       A       (WITNESS RICHARDSON) The way I try to answer that  
7 is that within the state government, the DHEC, Department of  
8 Health and Environmental Control people that have expertise  
9 in the area of radiation and this sort of thing, they  
10 certainly would provide guidance to state and local planners.

11           CHAIRMAN GROSSMAN: The question, if I understand  
12 it, is that if they did not follow these guidelines, would  
13 they then be considered as not complying with the  
14 requirements? Was that your question, Mr. Bursey?

15           MR. BURSEY: Yes, sir. That is an adequate  
16 rephrasing of it.

17           WITNESS RICHARDSON: You are addressing 0654?

18           CHAIRMAN GROSSMAN: Yes.

19           WITNESS RICHARDSON: Yes.

20           WITNESS KEVERN: Could I add something?

21           MR. BURSEY: Please.

22           CHAIRMAN GROSSMAN: Yes.

23           WITNESS KEVERN: The planning basis discussed in  
24 these pages of 0654 are a general discussion, essentially an  
25 introduction to this document. The specific criteria are

1 identified in Section 2 of this document. So part of what  
2 you are reading from is a general discussion the basis for  
3 which the specific criteria were identified. It might be  
4 somewhat out of context to interpret the introductory  
5 section of this document as being the criteria in itself.

6           The criteria are delineated in Section 2 of that  
7 document.

8           BY MR. BURSEY: (Resuming)

9           Q     Can you then give me an example of where it would  
10 be an erroneous assumption that the responsible state and  
11 local officials should be able to understand the parameters  
12 of the worst possible accident in order to be able to give  
13 specific instructions? Can you tell me where the specifics  
14 that you are referring to would make their understanding of  
15 these bases moot?

16          A     (WITNESS KEVERN) I could provide one example that  
17 comes to mind. It would be on page 7, the discussion of the  
18 time frames of accidents. That is somewhat of a lead-in or  
19 discussion of what we find in specific criteria associated  
20 with the Alert Notification System, the 15-minute warning,  
21 the 15-minute warning, the 15-minute Alert criteria. That  
22 would be one example of the discussion here.

23                   (Pause)

24          Q     It seems, Mr. Richardson, that your response in  
25 part was that if someone, one person knew in the state

1 agency, that we could infer that the plans at the local  
2 level would be adequate.

3       A       (WITNESS RICHARDSON) I do not think I stated it  
4 that way. I am saying that there is expertise within the  
5 state government to understand the consequences of these  
6 accidents and the planning requirements set forth in 0654.

7       Q       Well, could I infer from this planning basis --  
8 well. I am having to use common sense -- that if I were an  
9 emergency planner for Richland County, that I would need to  
10 understand, as this says, and I will quote again, "a  
11 knowledge of potential consequences, timings, release  
12 characteristics of a spectrum of accidents in order to  
13 determine what specific instructions should be given to the  
14 public"?

15               You are saying that local people do not need to  
16 know that.

17       A       (WITNESS RICHARDSON) I am saying that is to be  
18 imparted through the guidance here, and the way that the  
19 plans are developed and the input from the various state  
20 agencies.

21               (Pause.)

22       MR. LINENBERGER: Sir, excuse me, Mr. Bursey, but  
23 I too do not quite understand the situation.

24               You say it will be imparted through the guidance  
25 contained herein. In other words, you are saying this



1 document will provide the kinds of things that Mr. Bursey  
2 just read from page 7 to the local officials.

3           WITNESS RICHARDSON: This is the guidance that we  
4 look at in evaluating the plans, and the guidance that the  
5 state and locals would use in the development of those  
6 plans, so it does impart the guidance as implied here, sir.  
7 Now, the detailed knowledge that I think Mr. Bursey is  
8 seeking on the part of an individual, I cannot respond to  
9 that.

10           BY MR. BURSEY: (Resuming)

11           Q     Let me venture on a little bit more. I am not  
12 sure that I agree with your observations, but on page 11  
13 perhaps we can take it a step further. Halfway through the  
14 page a sentence starts -- we are talking about planning  
15 zones now: "On the other hand, for the worst possible  
16 accident, protective actions would need to be taken outside  
17 the planning zones," and the ten-mile zone is mentioned.

18                   And then there is mention of the fact that in  
19 fact, on "C" on the next page, page 12, for the worst core  
20 melt sequences, immediate life-threatening doses would  
21 generally not occur outside the zones.

22                   Now, if there is somewhere in here you could guide  
23 me where if I did not understand this basis that I read,  
24 that I could follow the specifics in here and be able to  
25 understand the magnitude of radioisotopes I would be dealing

1 with and the time frame with which we would expect them to  
2 be released in the worst case core melt, if you could show  
3 that to me it certainly would help me to understand your  
4 point.

5 (Panel of witnesses conferring.)

6 CHAIRMAN GROSSMAN: Is that directed to Mr.  
7 Kevern, by the way, or Mr. Richardson?

8 MR. BURSEY: Well, I --

9 CHAIRMAN GROSSMAN: I thought it was Mr. Kevern  
10 that made that point, that one did not have to accept the  
11 first part or understand the first part in order to comply  
12 with the requirements of the NUREG. Wasn't that your point,  
13 Mr. Kevern?

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1 WITNESS KEVERN: That generally is true.

2 CHAIRMAN GROSSMAN: Why don't you explain?

3 WITNESS KEVERN: Could you repeat your question,  
4 please?

5 MR. BURSEY: Oh, boy.

6 WITNESS KEVERN: I am confused on exactly what  
7 your question is.

8 CHAIRMAN GROSSMAN: And I think that probably  
9 everybody's efficiency is low now, that we might just as  
10 well recess for the evening and start at 9:00 o'clock. Is  
11 there some objection to that?

12 MR. BURSEY: No, sir. I certainly appreciate it,  
13 because I think I will understand my points better than I  
14 hear me making them.

15 CHAIRMAN GROSSMAN: There is just no point to  
16 having a worthless session, even though we would like to  
17 make time up.

18 What is the problem, Mr. Goldberg? Is there a  
19 problem with scheduling?

20 MR. GOLDBERG: Well, the only thing is, I guess I  
21 have now an augmented panel on QA-QC and they are from out  
22 of town. And I guess perhaps if I could have some  
23 estimation of the duration of the examination tomorrow, I  
24 would feel, you know, a little more comfortable. Some of  
25 those panelists have been here for several days and do have

1 other assignments.

2 CHAIRMAN GROSSMAN: We definitely are not going to  
3 get to them tonight anyway.

4 MR. GOLDBERG: I understand that. But I had hoped  
5 to begin the morning session with them. Maybe if I can get  
6 some estimation here about when we might reasonably expect  
7 to proceed with them. Could he so indicate?

8 CHAIRMAN GROSSMAN: Mr. Bursey, how long do you  
9 have?

10 MR. BURSEY: I do not anticipate that my questions  
11 for FEMA and the NRC representatives will be as lengthy as  
12 the questions for the Applicant's witness, in that I think  
13 their input into the proceeding is more on the planning  
14 basis and the regulatory guidelines that frame the  
15 activities, the planning activities for the state. And I do  
16 not think that it would take more than 30 minutes for me to  
17 make my direct.

18 CHAIRMAN GROSSMAN: Well, you can count probably  
19 it will not take more than the morning.

20 (Laughter.)

21 CHAIRMAN GROSSMAN: But I think we have reached  
22 the point of diminishing returns here. We are just going to  
23 be wasting time. It is just not coming up efficiently. So  
24 we will recess until tomorrow at -- yes, Mr. Knotts?

25 MR. KNOTTS: May I express our appreciation, as

1 the party who has the schedule problem ultimately, may I  
2 express our appreciation to the Board and the parties for  
3 continuing until the hour we have.

4           CHAIRMAN GROSSMAN: Thank you. We will recess  
5 until 9:00, then.

6           (Whereupon, at 7:25 p.m., the hearing was  
7 recessed, to resume at 9:00 a.m. on Thursday, July 16, 1981.)

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This is to certify that the attached proceedings before the

NUCLEAR REGULATORY COMMISSION

in the matter of: SOUTH CAROLINA ELECTRIC & GAS COMPANY, SUMMER 1

Date of Proceeding: JULY 15, 1981

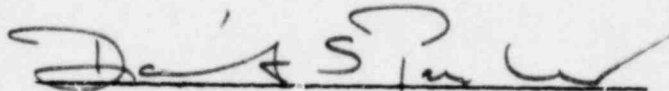
Docket Number: 50-395 OL

Place of Proceeding: COLUMBIA, SOUTH CAROLINA

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

DAVID PARKER

Official Reporter (Typed)



Official Reporter (Signature)

7/15  
②

The Emergency Information brochure was initially developed to inform and educate the general public located in the ten-mile area surrounding the Summer Station on emergency instructions and educational information on radiation. The present brochure for the Summer Station addresses all the requirements of 10CFR50, Appendix E and the guidelines of NUREG-0654, Rev. 1, on public education and information.

South Carolina Electric and Gas Company has previously committed to periodically update the emergency information contained in the brochure. Since the initial development of the brochure, several areas have already been identified for future revisions.

Some of these areas are:

- Emergency instructions will be presented in the beginning of the brochure.
- Emergency instructions will be presented in a simple instruction format.
- Evacuation routes to the specific county reception centers will be simplified.
- The evacuation routes map will show the locations of all the reception centers.
- The radiation exposure information chart will be redone to better present the information for ease of reading and understanding by the reader.
- The two-mile area around the Summer Station will be identified with a sector designation.

These are just some of the primary areas which have already been identified and discussed for the next brochure revision.

South Carolina Electric and Gas Company will conduct a statistical sample of the general public within the 10-mile area to assess the awareness of availability of information and what to do in case of an emergency. This sampling of the general public will provide input to South Carolina Electric and Gas Company on future changes to the brochure.