BEFORE THE

ATOMIC ENERGY COMMISSION

In the matter of	
APPLICATION OF DUKE POWER COMPANY	
	Docket Nos.
for license under the Atomic Energy	
	50-269
Act of 1954, as amended, for the	50-270
	50-287
Construction and Operation of Oconee	
Nuclear Station, Units 1, 2, and 3.	

Oconee County Courthouse,
Walhalla, South Carolina.

Tuesday, 29 August 1967

The hearing was held in the above-entitled matter beginning at 10:00 a.m.

BEFORE ATOMIC SAFETY AND LICENSING BOARD:

SAMUEL JENSCH, CHAIRMAN, United States Atomic Energy Commission, Washington, D.C.

DR. HUGH PAYTON, MEMBER, Los Alamos Scientific Laboratory, Los Alamos, New Mexico.

DR. JOHN HENRY BUCK, MEMBER, The Budd Company, Phoenixville, Pennsylvania.

APPEARANCES:

THOMAS F. ENGELHARDT and ROBERT E. CURTZ, appearing on behalf of the United States Atomic Energy Commission, Washington, D. C.

WILLIAM L. GRIGG, CARL HORN, JR., and ROY B. SNAPP, appearing on behalf of Duke Power Company

APPEARANCES (continued):

JACK H. HARRIS, Collier, Harris & Collier, Suite 207, Spainmour Building, Statesville, North Carolina, 28677.

JOSEPH O. TALLY, JR., Tally, Tally & Lewis, Home Federal Building, Drawer 1668, Fayetteville, North Carolina.

SPENCER W. REEDER, Spencer Building, St. Michaels, Maryland.

HARRY M. LIGHTSEY, JR., Suite 403, 1213 Lady Street, Columbia, South Carolina, 29201.

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P R O C E E D I N G S

CHAIRMAN JENSCH: Please come to order.

This proceeding is a hearing convened by the United States Atomic Energy Commission in accordance with a Notice of Hearing issued by the Commission on July 24, 1967 setting this time and place for the consideration of an application filed by Duke Power Company which seeks permission to construct a nuclear utilization facility which it has designated as the Oconee Nuclear Station Units 1, 2, and 3.

The Notice of Hearing issued by the United States Atomic Energy Commission was given general public distribution which included publication in the Federal Register on July 27, 1967 as reflected by Volume 32 of the Federal Register at page 10,996.

In addition to that general public notice of the Notice of Hearing a so-called public release was issued by the Public Information Section of the Atomic Energy Commission making all of that information available to newspapers and other news media within this area and generally throughout the nation.

The application filed by Duke Power Company has been filed pursuant to the provisions of Section 104(b) of the Atomic Energy Act as amended and seeks to construct three separate nuclear units, each designed to initially

operate at 2,452 megawatts thermal. The application seeks a provisional construction permit for each of these three nuclear units which are pressurized water reactors and are proposed to be located in Oconee County approximately eight miles northeast of Seneca, South Carolina.

The Notice of Hearing, in addition to providing for the evidentiary hearing which is here assembled, also provided for a pre-hearing conference. That pre-hearing conference was scheduled to convene and did convene in this courtroom in Walhalla, South Carolina, on August 15, 1967 and considered those matters within the scope of the Rules of Practice of the Atomic Energy Commission relating to pre-hearing conferences in general dealing with procedural matters which would aid in an expeditious presentation of evidence and the consideration of the matters before this hearing.

At the pre-hearing conference there were represented Duke Power Company by its counsel and its vice president, the Regulatory Staff of the Atomic Energy Commission was present by its technical assistants and two attorneys and in addition, there were present attorneys on behalf of 11 cities and towns which presented for consideration their petition seeking intervention as well as their motion to dismiss the application.

No decision was made on any of the matters considered at the pre-hearing conference for the reason that no evidence was presented, and the pre-hearing conference was intended to and did concern itself with procedural matters. Reference was made, however, to the fact that certain persons here in Walhalla had sought permission to participate under the Rules of Practice of the Commission by way of limited participation.

Mention was made of those individuals, and mention was also made of the fact that an order had been entered granting the request of those persons to make limited participations at this, the evidentiary hearing in this proceeding. Those persons were Mr. Joel T. Rogers, Mayor of the Town of Walhalla; Snead Schumacher, State Senator of Oconee County; and Reece Hubbard, Supervisor of Oconee County.

At a later time a specific request will be made, if those individuals do desire to make a limited participation at this evidentiary hearing. At the outset of an evidentiary hearing, the Atomic Energy Commission desires that a statement be made in reference to procedures and the scope of the proceeding and other matters which will inform the parties and the persons attending the hearing to be acquainted with the matters which will be under consideration and the manner in which that consideration will be given in this evidentiary hearing.

This hearing will be conducted by an Atomic Safety and Licensing Board provided by the Congress by an amendment

to the Atomic Energy Act. The Congress provided an Atomic Safety and Licensing Board would consist of two technical members and a person familiar with the conduct of administrative proceedings. We three sitting here constitute the Atomic Safety and Licensing Board appointed and designated by the Atomic Energy Commission for this proceeding.

On my left and on your right is Dr. John Buck of the Budd Company of Philadelphia, who has been long engaged in nuclear matters, particularly instrumentation, for some period of time. On my right and on your left is Dr. Hugh Paxton of the Los Alamos Laboratory, operated by the University of California at Los Alamos, New Mexico.

Dr. Paxton has been likewise long engaged in nuclear research for many years. Neither Dr. Buck nor Dr. Paxton is in any wise regularly employed by the United States Government. They have been appointed to be independent technical consultants to consider the matters of evidence which will be presented in this proceeding.

My name is Sam Jensch. I am a hearing examiner designated by the United States Civil Service Commission and presently assigned to the Atomic Energy Commission. No one of us on this Board has had any prior connection with the evidentiary matters which have been submitted by way of the application and the amendment prior to the time of the appointment by the Atomic Energy Commission for participation in this proceeding.

This proceeding will be conducted in accordance with the U. S. Atomic Energy Act as amended, the Rules of Practice of the Atomic Energy Commission, and the Administrative Procedure Act as modified by the Atomic Energy Act.

In accordance with the Administrative Procedure Act, this Board would only consider reliable and probative and substantial evidence as defined by the Administrative Procedure Act. No other matters will be received or considered by this Board.

As is apparent to everybody, this proceeding will be recorded by preparation of a transcript. The pre-hearing conference was also recorded in the same manner. The transcript of the pre-hearing conference has been filed in the Public Document Room at the Atomic Energy Commission, and is available for review by any member of the public.

The transcript of this proceeding will be similarly handled. After the completion of the transcript, it will be filed in the Public Document Room and available for review by any member of the public. A reference is made to the transcript of the pre-hearing conference for further matters that were considered and likewise all parties are informed to be familiar with the contents of this transcript, to be aware of the progress of the proceeding and other matters of interest to them.

Since the pre-hearing conference, and in accordance with provisions made at the pre-hearing conference, a brief

has been received from the petitioners, and when I use the term "petitioners" I refer to the 11 cities and towns to which reference was earlier made and likewise petitioner Piedmont Cities Electric Supply, Inc., which was also a petitioner in a joint petition filed with those 11 cities and towns.

A brief has also been received from the Regulatory Staff of the Atomic Energy Commission in reference to matters which were considered at the pre-hearing conference and, briefly, related to the standing or the interest which the petitioners have legally to participate in this proceeding and also to consider the contention raised by the would-be petitioners in reference to the motion to dismiss the application.

The motion to dismiss the application is based upon the ground that the proceeding by Duke Power Company related to Section 104(b) was not applicable to the application filed, and that another section of the Act should be applied to this proceeding. After a consideration of the briefs and the arguments which were made at the pre-hearing conference, two orders were entered by this Board yesterday.

The official record of those orders is available to any member of the public, and for complete details respecting those orders a reference should be made to those orders.

For brevity, however, reference may be made to the fact that this Board denied the petition of Piedmont Cities Power Supply, Inc, to participate in this proceeding upon the ground that it didn't have a legal interest recognizable by this Board or the Atomic Energy Commission for consideration in this proceeding.

The order, however, granted the petition to intervene by the Cities of Statesville, High Point, Lexington, Monroe, Shelby and Albemarle and the Towns of Cornelius, Drexel, Granite Falls, Newton, Lincolton, all in North Carolina.

As indicated, the reasons and the discussion in reference to the petition are set forth in the order to which reference should be made for complete details concerning the order.

The second order entered by this Board considered the motion to dismiss filed by the now permitted intervenors, namely the eleven cities and towns just enumerated. The order denied the motion to dismiss the application filed by Duke Power Company in reference to Oconee Nuclear Station Units 1 and 2 for the reason that in the opinion and judgment

of this Board, Section 104(b) of the Atomic Energy Act does apply to the application as filed in reference to the Oconee Nuclear Station Units Nos. 1 and 2.

The order in addition to that denial deferred the decision respecting the Duke Power Company Oconee Nuclear Power Station No. 3 for the reasons set forth in the order to which reference should be made, but specifically and briefly, setting forth the order, the reasons were that it is not evident that Duke will, even under a changing technology construct the Oconee Unit in any substantially different design than that which is experienced both in design and operation of its Unit 1 and 2 indicates it prudent and feasible. The Board concluded, therefore, that a decision respecting Oconee Unit 3 must be deferred until further data are available.

The order provided as a procedural matter in accordance with Section 2.730F of the Atomic Energy Commission Rules of Practice that these rulings are referred to the Commission for review to permit the Atomic Energy Commission to have a prompt consideration of the orders entered by this Atomic Safety and Licensing Board, and if desired by the Commission to make such change, motion or direction as it will be helpful for the Board in this proceeding and the parties thereto.

There has not been received any other request

for permission to intervene in the proceedings so far as this Board is advised.

In addition, prior to the convening of this evidentiary hearing today, a proposed correction of transcript dealing with some matters in reference to the transcript of the pre-hearing conference was served upon the participants of the pre-hearing conference.

The Atomic Energy Commission also desires that some explanation be given at the outset of the hearing concerning two methods by which persons may participate in this proceeding in accordance with the Rules of Practice of the Commission, one of which is by formal petition to intervene of the kind just described in reference to the eleven cities and towns. The Rules of Practice set forth the interests that must be asserted by a person seeking to participate in this proceeding by such a formal petition.

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Briefly the petition must set forth an interest likely to be affected by the decision to be reached in this proceeding and to set forth the contentions which would be asserted by a person if permission were granted to intervene. If intervention is granted following a consideration of the petition and the objections or comments in reference thereto, such an intervenor becomes a party to the proceeding and may participate by the presentation of evidence the enterings of witnesses and in all respects as any other party to the proceeding.

The second method by which participation may be had in a proceeding of this kind as outlined by the Rules of Practice of the Atomic Energy Commission is by way of limited participation. In that method a person who does not seek to intervene or who does not have such an interest that could be considered for intervention in this proceeding may nevertheless make such statement in reference to the issues which had been set forth by the Commission for consideration at the proceeding and express his views and comments in reference to those issues. Such statements are not evidence.

However, the Commission desires that person nevertheless have an opportunity to express themselves and particularly to raise such questions as may be in their minds so the parties to the proceeding may give consideration

to those questions and present evidence in reference to those questions if so desired. Or if there are any unanswered questions that the members of the public who are generally those who are seeking to participate by way of limited participation, the questions can be considered at this evidentiary hearing.

It has been the practice, it may be stated, in these proceedings that if members of the public desire to discuss certain aspects of this proceeding the Atomic Energy Commission intends that its Regulatory Staff be available to the members of the public to discuss with them outside of the hearing if they desire or in recesses any matters which may be of concern to them to aid the members of the public in a better understanding of the scope of the proceeding, the issues that have been prescribed for consideration and the character of the evidence that will be adduced in reference to those issues.

In accordance with that policy of the Atomic Energy Commission, the same invitation is given to the members of the public to confer with the members of the Regulatory Staff of this Commission who will identify themselves when we request a statement of appearances for this proceeding.

The hours of this proceeding will generally be from 10 o'clock in the morning to convene until 12:30 at

which time we will take the noon recess to permit procurement of lunch and consultation in reference to the proceedings and reconvene at 2 o'clock and proceed until 4:30 or 5, the latter hour depending upon the progress of the case, whether a witness is on the stand and in the process of completion of his testimony.

These hours are subject to change and persons desiring to be informed concerning the precise hours of each day's hearings should be familiar with the progress of the matter by their attendance or by reference to the public transcript. These hours may be changed at the suggestion or convenience of the parties or their witnesses and in order to expeditiously permit the presentation of evidence. By that, I mean on some occasions we may meet at 9:30, we may go until 6 o'clock if the circumstances require or latter.

We will endeavor to accommodate the parties and their witnesses as well as the members of the public who desire to participate by way of limited participation.

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CHAIRMAN JENSCH: If we may just interrupt our discussion in reference to procedures for a moment and request those gentlemen in the back to kindly close their doors. We are getting a glare which makes it difficult for us to look towards the witnesses and other participants in the proceeding.

Thank you.

The Regulatory Staff of the Commission will be requested in accordance with the usual practice to make an outline of the matters which the Regulatory Staff have considered and the processes that they have undergone prior to the presentation of evidence in this proceeding.

Undoubtedly they will make reference to the statutory group prescribed by the Congress and designated as the Advisory Committee on Reactor Safeguards which is likewise an independent technical group appointed by the Commission pursuant to the direction for the Congress to independently review the technical aspects of this application.

This record indicates that the Advisory Committee on Reactor Safeguards has reviewed this application and all amendments thereto and has submitted its report as a consultant to the Atomic Energy Commission. That report by the Advisory Committee is likewise a matter of public record and available for review by any member of the public.

Reference will again be made to the notice of

hearing issued by the Atomic Energy Commission for general information of the issues which the Commission has prescribed for consideration in this proceeding.

The Commission, in this review of the application and amendments thereto, as well as a consideration of the report by the Advisory Committee on Reactor Safeguards, has prescribed that the following issues shall be considered in this proceeding as follows: one, whether in accordance with the provisions of 10CFR, and that abbreviation refers to Code of Federal Regulations which are prescribed by Acts of Congress that each agency provide for the conduct of proceedings -- in accordance with Section 10CFR, Subsection 50.35A, the applicant, and the applicant here is Duke Power Company, whether the applicant has described the proposed design of the facilities, including but not limited to the principal architectural and engineering criteria for the design and has identified the major features or components incorporated therein for the protection of the health and safety of the public; B, whether such further technical or design information as may be required to complete the Safety Analysis and which can reasonably be left for later consideration will be supplied in the final Safety Analysis Reports; C, whether safety features or components, if any, which require research and development have been described by the applicant and the applicant has identified, and there

will be conducted a research and development program reasonably designed to resolve any safety questions associated with such features or components; and, D, whether on the basis of the foregoing there is reasonable assurance that, first, such safety questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facilities, and, second, taking into consideration the site criteria contained in 10CFR, Part 100, the proposed facilities can be constructed and operated at the proposed location without undue risk to the health and safety of the public. Secondly, the issue of whether the applicant is technically qualified to design and construct the proposed facilities. Thirdly, whether the applicant is financially qualified to design and construct the proposed facilities. And finally, fourth, whether the issuance of permits for the construction of the facilities will be inimical to the common defense and security or to the health and safety of the public.

A final statement that the Commission desires to be presented at the outset of a hearing is in reference to the jurisdiction of the Atomic Energy Commission as conferred by the Congress upon the Commission to provide for the consideration that can be entertained by the Commission of such an application as filed by Duke Power Company.

At this hearing this Atomic Safety and Licensing Board and ultimately for decision by the Atomic Energy Commission, inquiry will be made whether the Duke Power Company should be granted a provisional construction permit to build a nuclear reactor facility and the three units described in this application which will be used to produce electric energy.

As is the case with any plant which produces electricity, a number of public agencies may have an interest in one or more aspects of the construction of the plant, its operation and the transmission and sale of its electrical energy.

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The particular plant with which we are concerned differs from most other plants in that it will produce electricity by a nuclear process rather than by some other means. That is why this hearing is being held before an Atomic Safety and Licensing Board appointed by the Atomic Energy Commission.

This Commission, for the sake of brevity, will be referred to perhaps several times in this proceeding as the AEC. The AEC, however, regulates only some and not all of the matters involved in the construction and operation of nuclear reactors. The AEC regulatory functions are limited by law to essentially two areas. One, public health and safety. And two, the common defense and security.

The issues in this case fall within these two areas.

With respect to the first area, public health and safety, the AEC regulatory issue is further restricted to public health and safety questions related to the special characteristics of nuclear materials and atomic energy. These are sometimes referred to as radiological hazards or nuclear hazards or perhaps it should be considerations of safety in reference to nuclear materials.

Questions about other aspects of health and safety or other aspects of the plant not falling within the areas of radiological health and safety and the common defense

and security are not within the AEC's jurisdiction and will not be considered at this hearing. Thus we will not consider such matters as the possible thermal effects as opposed to radiological effects of the facility and its operation on the environment, the effect of the construction of the facility on the recreational, economic, or political activities of the area near the site or any matters of aesthetics.

Some of you who may be present here today may have questions concerning aspects of the plant which are not involved in this hearing. It may be helpful to you if I request the Regulatory Staff to identify in a general manner some of the other governmental agencies that have or may have a regulatory interest in matters of this kind.

Therefore I inquire of the staff counsel of the Regulatory Staff of the Atomic Energy Commission what state and local agencies have an interest in the non-radiological aspects of the plant. I am sure the staff counsel or his assistants have consulted or have been informed concerning state and local agencies and before his response, will he kindly identify himself and his assistants and thereby in effect will you kindly make an appearance now on behalf of the Regulatory Staff of the Atomic Energy Commission in this proceeding?

MR. ENGELHARDT: Appearing on behalf of the Regulatory Staff of the Atomic Energy Commission is Thomas

F. Engelhardt. My address is U. S. Atomic Energy Commission, Washington, D. C.

To my right is my associate counsel, Mr. Robert E. Turtz of the same address.

CHAIRMAN JENSCH: Thank you.

Will you respond in reference to the state and local agencies?

MR. ENGELHARDT: Yes, sir.

I have had an occasion to consult with Mr. Harris M. Lightsey, Jr., Assistant Attorney General for the State of South Carolina who has informed me --

CHAIRMAN JENSCH: Are you able to use the microphone? I know several people are straining to hear. Can you hold the microphone up a bit?

MR. ENGELHARDT: Would it be better if I sat for this purpose?

CHAIRMAN JENSCH: If you can lift that out of your container or --

MR. ENGELHARDT: Why don't we defer -- oh, here it is.

Yes, Mr. Lightsey has informed me that the following South Carolina state agencies would have a concern in the non-radiological aspects of this facility: The State Board of Health, Division of Sanitary Engineering. The Pollution Control Authority. The Public Service Commission. The

Atomic Energy Advisory Board. And the Development Board of the State of South Carolina.

In addition of course the State of -- rather, the County of Oconee would also have an interest in this facility since the facility will be built within the confines of that county.

CHAIRMAN JENSCH: Are you able to say whether or not communication has been had with any or all of these agencies to which you refer?

MR. ENGELHARDT: The Regulatory Staff has kept the State of South Carolina through its Governor fully informed of the development of this application by sending, furnishing copies of the application to the Governor's office and information related to that application and the fact that the application was forwarded to the Governor and to various state agencies.

The applicant on the other hand has kept the supervisor of Oconee County, who is the chief officer of the county, fully informed of the development of this application and has furnished him with copies of that application.

CHAIRMAN JENSCH: Thank you. Turning now to other agencies which may have an interest in a proceeding of this kind, or rather in a nuclear plant of this kind, as will be evident from the evidence which this Board understands will be adduced at this proceeding in the light of the statements made at the pre-hearing conference, a nuclear power plant, like other industrial plants, may discharge liquids into adjacent waters. The radioactive effects of these discharges, if any, are of course regulated by the Atomic Energy Commission. However, other effects of the discharges which might affect the quality of the water may be controlled by the Federal Water Pollution Control Administration of the Department of Interior. That agency is charged with the administration of the Federal Water Pollution Control Act, which authorizes proceedings for the abatement of pollution of interstate or navigable waters.

Similarly, gaseous discharges, if any, which might result in air pollution other than radiological, may be controlled by the Federal Department of Health, Education, and Welfare. That agency is charged with the administration of The Federal Clean Air Act, which authorizes proceedings for the abatement of air pollution endangering the health or welfare of any person.

When a person such as Duke Power Company wishes to construct a plant which involves the building of a structure such as a wharf or breakwater in navigable waters outside

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established harbor lines, he must, if the construction will require excavation or filling of a navigable water, and in certain other circumstances, obtain an authorization from the United States Corps of Engineers of the Department of the Army. In such cases, the Corps of Engineers is primarily interested in eliminating or avoiding hazards to navigation.

A plant which generates electrical energy for transmission in interstate commerce or for sale at wholesale in interstate commerce is subject to some of the provisions of the regulatory provisions of the Federal Power Act. That Act is administered by the Federal Power Commission, which regulates such matters as the wholesale interstate rates charged for electricity, accounting practices, mergers, and consolidations with other utilities or companies and in certain cases the issuance of securities.

In some instances involving public utility holding companies or their subsidiaries, the Federal Securities and Exchange Commission requirements rather than those of the Federal Power Commission would be applicable to owners and operators of nuclear power facilities with respect to the purchase and sale of securities, utility properties and other assets, as well as the approval of reorganizations, mergers, and consolidations.

As indicated, if you have any questions or concerns about the scope of these other public agencies, this Board will

or3 1 undertake to extend the invitation of the Atomic Energy
2 Commission and invite your consultation with the Regulatory
3 Staff of this Commission in reference to any concerns you may
4 have as to the scope or jurisdiction of other Federal agencies.
5 That completes the procedural and the outline of the
6 scope of the matters intended to be considered at this proceed-
7 ing. Before anything further, let us proceed to a statement
8 of appearances on behalf of the parties to this proceeding.
9 First, is there an appearance on behalf of the applicant,
10 Duke Power Company?
11 MR. GRIGG: Yes. Mr. Chairman. My name is William
12 H. Grigg. I am assistant and general counsel of Duke Power
13 Company. My address is 422 South Church Street, Charlotte,
14 North Carolina. Also appearing on behalf of the applicant,
15 on my right, Mr. Carl Horn, Jr., vice president and finance
16 of Duke Power Company of the same address, and on his right,
17 Mr. Roy B. Snapp, attorney, whose address is 1725 K Street,
18 Northwest, Washington, D. C.
19 CHAIRMAN JENSCH: Thank you, sir. The appearance
20 having been entered by the Regulatory Staff of the Atomic
21 Energy Commission, inquiry is now made as to whether there is
22 an appearance on behalf of those cities and towns which have
23 been permitted to intervene in this proceeding in accordance
24 with an order of this Atomic Safety and Licensing Board entered
25 on August 28, 1967.

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MR. HARRIS: Yes, Mr. Chairman. My name is Jack R. Harris of Suite 207, Stimson-Wagner Building, Statesville, North Carolina. I have with me Mr. J. O. Tally, Jr., of Fayetteville, North Carolina, whose address is Post Office Drawer 1660. In addition, there appears Mr. Spencer W. Reeder of the Spencer Building, St. Michaels, Maryland. We are here on behalf of those cities and towns that have previously been enumerated by yourself, and I will not so enumerate them.

In addition, you also are aware that we represent that non-profit corporation, Piedmont Cities Power Supply, Inc., for whatever purpose that we may be able to appear for them.

CHAIRMAN JENSCH: Thank you, sir. Is there any person present here who seeks to participate in this proceeding by formal intervention?

The Board hears no such request. At the outset of these hearings, opportunity is given as indicated for a limited participation in this proceeding, and inquiry will soon be made in reference to that matter. Did you have a statement, Staff Counsel?

MR. ENGELHARDT: Yes, Mr. Chairman. I think unless you are deferring until you make -- until you identified limited appearees, that Mr. Lightsey, representing the State of South Carolina, is also present here today.

CHAIRMAN JENSCH: Mr. Lightsey, we welcome you to the proceeding. As indicated at the pre-hearing conference,

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we invite you to stand and make your statements in reference to any of these matters whenever your interest so dictates, without specific request. Will you, for this record, as you did for the pre-hearing conference, kindly enter your appearance? The State of South Carolina didn't file a formal petition to intervene, but participates in this proceeding in accordance with the Rules of Practice of the Atomic Energy Commission which permit a state to participate in the proceeding and to interrogate witnesses and to make such recommendations and contentions as it sees fit. Will you proceed, Mr. Lightsey?

MR. LIGHTSEY: Yes, Mr. Chairman. On behalf of the State of South Carolina and the various State agencies, I would enter the limited appearance pursuant to Section 2.715 of the Atomic Energy Act. My name is Harry M. Lightsey, Jr., Assistant Attorney General of the State of South Carolina, 1213 Lady Street, Columbia, South Carolina. Thank you.

CHAIRMAN JENSCH: Thank you, sir. Before proceeding, the attention of the parties, as well as the members of the public, is directed to a recent order of the Atomic Energy Commission dated August 25, 1967, in reference to this application filed by Duke Power Company. By that order, which was indicated in a letter order and which likewise has been made part of the public record and available for review by any member of the public, the Atomic Energy Commission considered a request filed by Duke Power Company pursuant to

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Section 50.12 of the Rules of Practice of the Commission to permit the perfo:mance by Duke Power Company of certain work at the site of the proposed Oconee Nuclear Station, Unit No. 1, prior to determination whether there would be the issuance of a construction permit by the Commission.

The letter order by the Atomic Energy Commission states that the presentation made by Duke Power Company in support of that request indicated that the design of the Oconee containment structures is such that the tendon access and inspection galleries must be completed before reenforcing steel for the base slabs may be placed.

Duke Power Company represented that the scheduling of the construction of the galleries is critical and must occur at an early stage. Otherwise the placing of the steel for the base slab can't be undertaken and the start of construction of the Oconee Unit No. 1 facility would be delayed some six weeks after a construction permit if the Commission determined that a construction permit should be issued in this proceeding.

The Commission indicated that it had considered the application, the request, in reference to the application which was then a part of the public record in the proceeding and the Commission stated that it had determined that an exemption under the provisions of Section 50.10(b) of the Rules of Practice of the Commission should be granted for the reason that in granting the exemption it will not endanger life or property or the common defense and security and is otherwise in the public interest, and therefore the Commission authorized Duke Power Company to construct only the tendon access gallery for Unit No. 1 at the Oconee

nuclear station site.

The Commission emphasized, however, that the granting of this exemption shall have no effect upon the subsequent grant or denial of a construction permit which Duke Power Company seeks in this proceeding, and any work performed pursuant to this exemption would be performed entirely at the risk of Duke Power Company.

Likewise the granting, the Commission order, of this exemption does not constitute an approval of the type or the adequacy of the method of its installation.

Before calling for statements from limited participants, there has been received by the Atomic Energy Commission two communications to which reference was earlier made, one from Senator Strom Thurmond, U. S. Senator from the State of South Carolina, and second, a communication from Senator Ernest Hollings, United States Senator from South Carolina. These statements from Senator Thurmond and Senator Hollings have been made a part of the public record and are available for public review.

Inquiry is now made of the parties if there is any objection to having those statements incorporated within the transcript as if read.

Does the applicant have any objection?

MR. GRIGG: No objection.

CHAIRMAN JENSCH: Are you familiar with those

statements by review of the public record of this proceeding?

MR. GRIGG: We are.

CHAIRMAN JENSCH: Does the staff have any objection?

MR. ENGELHARDT: Staff is familiar with these statements. It has no objections to their inclusion in the record.

CHAIRMAN JENSCH: Intervenors?

MR. HARRIS: No objection.

CHAIRMAN JENSCH: State of South Carolina?

These statements are brief and may be of interest to the public who may not have had an opportunity to review the public record.

The statement by Senator Strom Thurmond is as follows. It is addressed to Chairman Seaborg of the Atomic Energy Commission. The Senator states:

"As the senior Senator representing the State of South Carolina I am making this statement in support of the application of Duke Power Company to construct this proposed three-unit Oconee Nuclear Station in Oconee County, South Carolina. While I have not examined in detail the technical design of the Oconee Plant, I have followed with great interest the development of the nuclear power industry. Increasingly public utilities are turning to the atom as a source of

electric power generation. I believe that experience has shown that they are making their decisions on the basis of sound economic and engineering judgments. The safety record of the nuclear power industry has been outstanding. Duke Power Company is eminently qualified to build the Oconee Plant. It has participated in the successful operation of the Parr Nuclear Plant in our State and has built and operated conventional electric generating plants for a number of years. Its plants are among the most efficient in the nation. I am confident that Duke Power's application for a construction permit is based upon sound design principles and that every effort has been made to assure safe operation. I am equally confident that the review of the application by the Regulatory Staff of the Atomic Energy Commission and by the Advisory Committee on Reactor Safeguards has been thorough. It is my hope that the Atomic Energy Commission will act promptly on this application in view of the tremendous benefit which will accrue to this section of South Carolina through the resulting economic

growth. The availability of additional power will attract new industries and the recreational facilities which will result from this development will bring enjoyment and pleasure to thousands of people.

"One of the more tangible results will be millions of dollars in Federal, State and local taxes which will enable the respective governments to provide the services expected and needed by our people.

"It is therefore without hesitation that I urge your favorable consideration of this application."

That concludes the statement by Senator Thurmond.

The statement by Senator Hollings is as follows. This statement is addressed to the Atomic Safety and Licensing Board. The statement is:

"I am Ernest F. Hollings, U.S. Senator for the State of South Carolina. I am making this statement with a request that it be incorporated into the record of the proceedings of the public hearing in Walhalla, South Carolina on August 29, 1967, on the matter of Duke Power Company's application for authority to construct its proposed Oconee Nuclear Station.

"I am very much interested in this project and what it foretells for the people of South Carolina. It involves an investment of over $300 million. This will mean more jobs and industry. It will also mean more tax revenues to support the services that South Carolina needs. It affords a tremendous opportunity for the further development of the natural resources of Piedmont, South Carolina and for recreation and conservation programs.

"The area that will be served by the Oconee Station is already one of the fastest growing areas in the Southeast. The power to be generated by the Oconee Station is a necessity if orderly growth and development is to continue.

"Nuclear generation of electricity has proven to be safe and efficient. It does not pollute the air and is aesthetically unobstrusive. It can also produce lower power costs.

"The development of the nuclear industry has occurred through a unique partnership between the Atomic Energy Commission and private industry. The safety record of this industry has been exceptional, perhaps unequaled in the development of any other industry. Every

application for authority to construct and operate a nuclear facility is thoroughly reviewed by the Regulatory Staff of the Atomic Energy Commission and by the Advisory Committee on Reactor Safeguards to insure the health and safety of the public.

"I have no doubts about the safety of the Oconee Nuclear Station or Duke Power Company's ability to construct and operate it. I would hope, therefore, that your deliberations might be expedited so that the benefits of this facility would be available at the earliest possible date."

That concludes the statement by Senator Hollings.

In addition, it should be mentioned that there was received this morning -- and it has not been made a part of the published record -- it is so brief that while any party is entitled to read this -- it has been transmitted by William Jennings Bryan Dorn and it is a welcome to his Congressional District. At 10:00 a.m. on August 29.

The gentleman standing. Are you Congressman Dorn?

MR. LIGHTSEY: I would like to present on behalf of the state, Congressman Dorn, Congressman from our Third Congressional District in which this county is located. He would like to make a statement at this time.

CHAIRMAN JENSCH: We welcome you to the proceeding and invite you to make a statement in reference to this proceeding.

MR. DORN: Thank you.

My main purpose here this morning, since I could not send a statement prior to the meeting, would be to come here and welcome you to our Congressional District.

CHAIRMAN JENSCH: We don't want to say we are not glad to have the statements from Senator Thurmond and Senator Hollings but we are delighted that you came here in person with your statement.

MR. DORN: Thank you.

I do want to welcome you, Chairman Jensch and Dr. Buck and Dr. Paxton, to South Carolina and particularly to our Congressional District. It has been my honor to represent this district for 19 years.

I might say when the Joint Committee of the Congress on Atomic Energy was first really in operation, it was my privilege to be in Congress at that time and I know of no agency of the Federal Government that is held in higher esteem than the Atomic Energy Commission.

We appreciate what you gentlemen are doing for our country and to develop our nuclear energy.

I might say that on behalf of the Joint Committee of the House and Senate, we have here today the Honorable Gray Cosmos a long personal friend of mine who is an observer here today and I want to pay tribute to this Joint Committee.

They have gone all over this country and I think they have done an excellent job in developing the defenses of this nation and now they are equally as interested and devoted and dedicated as you gentlemen are to the peaceful use of the atom and so I do want to welcome you to this district and say that the atomic energy plant, the Savannah River Plant, last year was added to this Congressional District.

I believe the Oconee Station will complement the other one using plutonium and up here uranium. There is no doubt it is needed. I think I am in a position to assure the gentlemen here that power will be needed in this area. It is one of the fastest growing areas of the nation and as a member of the Public Works Committee, having supported Appalachia, and this being one of the original counties in Appalachia, to me it would be rather incredible to vote a billion dollars for the development of Appalachia and not permit this great project, private

enterprise project, tax paying project, to proceed promptly and I might say on the safety, our committee has studied safety throughout this nation, air pollution, water pollution and we feel that this great company here is seeking to build these units and is responsible in this field and will, although this particular committee is not as much interested as some of the other agencies represented here, that this company is responsible and by any criteria I think can conform to the standards set by the Congress as far as air pollution, water pollution and safety to protect the people of this area and of this country and of this -- there have been many -- I want the Chairman and the distinguished visitors here on the panel to realize that one road block after another has been thrown in the pathway of this great Keowee-Toxaway project. $700 or $800 million project.

Now that it is on the way it seems there are additional road blocks but I can't help but believe this project will be permitted to proceed on schedule and furnish the need in this area for electricity, abundant power and recreation and I might say power at less cost.

The rates of this great company is less than they were -- they are making available to the consumer less than 30 years ago. This of course is of interest to the Congress with spiralling prices and deficits in the Congress

and expenditures for defense, the fact that this project would pay enormous taxes to the local community, state and the nation is of tremendous interest to the people here.

Again I want to welcome you, Mr. Chairman, and Dr. Buck and Dr. Paxton, and if I may, my statement is a longer one than my two colleagues and I would like to submit it for the record.

Thank you.

If there is anything we can do for you while you are here don't hesitate to let us know.

CHAIRMAN JENSCH: Thank you, Congressman Dorn.

Your views will be forwarded to the Commission who will be interested in your comments.

MR. LIGHTSEY: Mr. Chairman, Congressman Dorn has asked me to request if he might that he might be excused. He has a meeting he must attend in Greenville and I would like to ask your permission he be allowed to leave.

CHAIRMAN JENSCH: Congressman Dorn, feel free to leave or come back again as soon as you can and give us your statement at your convenience.

MR. DORN: Thank you, Mr. Chairman.

CHAIRMAN JENSCH: At this time, inquiry will be made if there are persons present who seek to participate in this proceeding by a limited participation by the

presentation of statements.

As indicated, three persons had requested and an order had been entered permitting the participation by gentlemen here in Walhalla.

Is Mr. Joel T. Rogers, the Mayor, here at this time?

A gentleman is standing. I take it he is Mayor Rogers.

Will you come forward please to the microphone for your statement?

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MR. ROGERS: Mr. Chairman and gentlemen of the Board, as Mayor of the Town of Walhalla we are delighted that this hearing is being held in our city and it's my purpose to welcome you here to our city.

CHAIRMAN JENSCH: Thank you. If I may interrupt your statement to say that not only is the Commission, but this Board is appreciative of the fine facilities you have made available to the Commission and to us for this proceeding. It's large, comfortable, air-conditioned, and we appreciate it.

MR. ROGERS: Thank you, sir. I might add that Walhalla is a Scandinavian term meaning "garden of the gods." It's not only the garden of the gods, but it's also the gateway to the Blue Ridge and to the Great Smoky Mountains, and, too, legend tells us that Walhalla is quite unique in many other respects. We are the biggest little city in South Carolina. We are just as big as New York, the only difference being there is not as many people here.

(Laughter.)

MR. ROGERS: And, too, it's been said that we can't make the sun shine, but we do make the moonshine.

(Laughter.)

MR. ROGERS: Indeed, we are happy not only to have you, but all of our other visitors who are conerned with this project, and certainly we of Walhalla are vitally concerned in that Duke Power Company has been our friend, our neighbor,

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as well as our servant for many years, and by your kind consideration of granting them this permit to conduct this project, I am sure that they can better serve our city, our State, and our Nation better in the future. Thank you.

CHAIRMAN JENSCH: Thank you, Mayor Rogers. Is Mr. Snead Schumacher here?

A gentleman is standing. Will you come forward, please, to the microphone?

MR. SCHUMACHER: Thank you, Mr. Chairman and members of the Board. I, as the State Senator from Oconee County, would also like to express my pleasure and welcome to have you gentlemen here in our midst. We feel quite honored to have you here and we hope you will certainly find our hospitality unexcelled. Secondly, I would like to thank you for allowing me this privilege of making a brief statement here at this hearing, and I might say that I made this request on behalf of the citizens of Oconee County as their elected representative to the State Senate. We here are most anxiously awaiting the completion of this project started by Duke Power Company.

As has been previously stated by Congressman Dorn, Oconee County falls within the Appalachian region of South Carolina, and the Duke Power Company Keowee-Toxaway project and especially the Oconee Nuclear Station, I am convinced will open many doors of opportunity for the people of this region, not only during the phase of construction but thereafter in

the industrial expansion that will ensue, and I think this has been borne out throughout the country in expansions of this type.

The county share in the tax dollars that will be channeled into our coffers through this development will help us solve many of the local problems that we have here in connection with education, housing, and medical facilities for our aged and indigent, highway construction, recreational facilities, and, above all, the job opportunities and the ability to train the young people of our region to fill these jobs.

Now, I have been conducted through the Parr Experimental Station on several visits and have had the operation explained to me. I by profession am a consulting engineer, and even though I am not overly familiar with the nuclear terms and phraseology and so forth, I do have some understanding. The Duke Power officials have undertaken a great deal of time and effort in explaining to the local officials and to interested citizens in this area the safeguards that will be provided in this Oconee Nuclear Station.

We here feel that under the supervision of the Atomic Energy Commission and the capable operation of Duke Power Company that this project is certainly safe and is of paramount importance to our region. It's also our expressed opinion that the intervention to licensing this project by

cities remote from this area is, in our opinion, an unrealisitc and selfish maneuver, sir.

By their standards, we feel we would just as justified in opposing any type of industrial expansion in their vicinity if we weren't allowed to share in the proceeds. I certainly hope that the Commission in their judgment will disregard any sectionalism opposition to this project. Certainly one of this magnitude and one that means so much to this area and this region and the citizens here.

So, on behalf of the citizens of Oconee County and as their elected representative to the State Senate, we request the Atomic Energy Commission to license this Oconee Nuclear Station as soon as possible in order that there will be no delay in the construction of this project. I certainly thank you for granting me this privilege and for the courtesy of allowing me to present it this morning. Thank you, sir.

CHAIRMAN JENSCH: Thank you, Senator Schumacher.

Is Mr. Reece Hubbard, Supervisor of Oconee County, here?

A gentleman has arisen. Will you come forward to the microphone, please?

MR. HUBBARD: Thank you, Mr. Chairman. We very humbly and submissively appreciate this opportunity to get to say a few words on behalf of Oconee County.

CHAIRMAN JENSCH: Before you proceed, perhaps I should have expressed our thanks to you for this Oconee County Court House rather than to Mayor Rogers, but in any event we express our appreciation.

MR. HUBBARD: We are thankful we work together. We are real proud of this and are real proud that you people have come to be with us.

On behalf of the people of Oconee County we feel personally, not prejudiced or selfish, we feel we have the best people that you can find anywhere.

CHAIRMAN JENSCH: You understand we are not disputing that.

(Laughter.)

MR. HUBBARD: Thank you, sir.

As we would like to express our gratitude as a public servant -- you know, some of us people, whenever we attempt to be a public servant we get, with all due

respect to everyone, we do have certain names that we are called. Sometimes we don't know whether to answer them by that name or not, but what I am trying to say is this: a public servant usually, especially in the supervisor's office, he gets to be where you explain it as football. He gets to be pushed around a little bit. But we expect it and love our work. We love you people to be here. We do wish to say at this time for the people of Oconee County that we are anxious for this development to come through and to be fulfilled, and we think we can visualize the greatness of this project.

We feel that the time will be permitted and time will actually show us just what advantages we will have that we can't observe at this point, but we are looking forward to this time whenever we can be able to receive and enjoy the wonderful opportunities that this will bring forth and we feel our people from my county are behind this 100 percent.

I wish to thank you for this opportunity, and if there is anything else that we might do in this we would very much appreciate being called on. Thank you very much.

CHAIRMAN JENSCH: Thank you, Mr. Hubbard.

Is there any other person present here who seeks to participate by limitated participation by making a statement in this proceeding?

The Board hears no such --

MR. LIGHTSEY: Mr. Chairman. If I might, we have several State agencies represented today, and rather than present them for testimony it is our wish that they present their testimony or their feelings in the form of statements for the record, unsworn statements, and therefore if there are no other members present I would like to proceed to present them to the Board.

CHAIRMAN JENSCH: Mr. Lightsey, will you proceed to call each one of them and we will be glad to have their statements for the record.

MR. LIGHTSEY: I would first like to present to the Board the Honorable Earl E. Morris, Jr., Senator from Pickens County, District No. 2, who has a statement to present to the Board.

CHAIRMAN JENSCH: Senator Morris, will you come forward, please?

CHAIRMAN JENSCH: We are now receiving copies of the statement I understand Senator Morris will present.

Will you proceed?

Mr. Morris. Mr. Chairman and Dr. Paxton and Dr. Buck, we also welcome you to this area of the State.

My name is Earl Morris, Jr., Senator from Pickens County, Senatorial District No. 2 of our state.

We share in the expenditure and development of the Keowee-Toxaway project in view of the fact that the rivers dividing the two counties are the basis for the lakes.

While the Oconee Nuclear Station is located in Oconee County, the hydro stations are located in Pickens County. We hope the next nuclear station, or else.

(Laughter.)

In the beginning I do want to add my own public support and endorsement of this project to the many and almost unanimous expressions of those concerned.

I make these statements on behalf of the citizens and officials of Pickens County in support of the wishes and expressed desires of the good citizens of Oconee County and their public officials whom you have heard here today.

Citizens of our county, this entire area in both states and the State of South Carolina are all convinced as

to the need to issue the construction permit for the Oconee Nuclear Station at the earliest possible time.

Duke Power Company has complied with all of the requirements of the Federal Power Commission and has satisfied requirements of other agencies of the Federal Government including the Department of Interior.

Approval of the project has been granted by all concerned in the Federal and state and local governments. This includes United States Army Corps of Engineers.

Approval of this project has been delayed for a seemingly interminable time by a few obstructionists.

The mood of the citizens of both Oconee and Pickens Counties and even of South Carolina is becoming intolerant of dilatory objections and impediments to the proper and timely prosecution of work on this huge project.

I would call attention of this Board to the fact that by the time Duke Power Company's application had reached the Federal Power Commission, this project had been endorsed by the General Assembly of the State of South Carolina, the legislative delegations of both Oconee and Pickens Counties, by the various municipal associations in the two counties, by the Blue Ridge Electric Cooperative, Inc., which serves the counties, by the Planning and Development Commissions of both counties and by many other individual groups and agencies.

I think it is a matter of interest that in South Carolina there is no known public nor private opposition to the orderly prosecution of the Keowee-Toxaway project.

I would like to specifically point out that the Pickens County Planning and Development Commission undertook a thorough and comprehensive study of this project before officially endorsing it.

In its research the Commission referred to the great volume of work accomplished by the United States Study Commission for the southeast river basins including its Organization and Methodology for River Basin Planning. It also read the various philosophies of river basin planning as developed by the Congress of the United States, the Corps of Engineers, the Department of Interior and by such private agencies as Resources for the Future, Inc. Particular reference was made to publications by John T. Krutilla and Otto Ekstein in their economic studies and more specifically their publication, Multiple Purpose River Development. After a dispassionate consideration of the alternatives for development, the Commission's conculsion was that the Keowee-Toaxaway project should be built by Duke Power Company in conformance with the various requirements of the respondible departments of Federal, state, and local governments.

Duke Power Company has indicated its intention

to honor its original commitment of expenditures and investments by already announcing plans for an expenditure of over $500 million. We are anxious for these tax-paying facilities to be completed at the earliest possible time because of potential revenues to come to these two counties. These revenues are necessary to finance the additional services that are and will be demanded and are being provided now for the project; to wit, roads, hospitals, schools, health facilities, police protection and others. Delay in approval of the project only places an unnecessary demand on our local taxpayers.

Gentlemen, I sincerely hope that this conference and the hearing to follow will be the final hurdle that must be met. That you of the United States Atomic Energy Commission Board will approve the project, do all in your power to eliminate any further delay in the completion of this project for Pickens and Oconee Counties in northwestern South Carolina. I commend this project to you as a safe, sound, economically feasible, and worthwhile venture both from the point of view of good economics as well as the best use of our natural resources.

Thank you very much, gentlemen.

CHAIRMAN JENSCH: Thank you, Senator Morris.

Mr. Lightsey, did you have an additional participant?

MR. LIGHTSEY: Yes. I would like next to present Mr. William T. Lenton, Director of the Division of South Carolina Engineering of the State Board of Health and also Director of the Pollution Control Authority. He has been with the State Board of Health Pollution and Control for twenty-five to thirty years and will present a letter from Dr. E. Kenneth Aycock, State Health Officer and Chairman of the South Carolina Pollution Control Authority.

CHAIRMAN JENSCH: Very well. Would you come forward, please, Mr. Lenton.

MR. LIGHTSEY: I have copies of this letter.

CHAIRMAN JENSCH: We appreciate being able to follow the statement by reading the presentation. Would you proceed?

XXX MR. LENTON: Mr. Chairman, I am presenting this in the name of Dr. E. Kenneth Aycock, State Health Officer and Chairman of the Pollution Control Authority, and I would like first to express his regrets at his inability to be here.

I would like also to add my welcome to those that have been advanced to you gentlemen and to say that South Carolina is extremely pleased and honored to have you here.

I am reading this as it is written and ask that it be so recorded.

"Mr. Chairman, my name is E. Kenneth Aycock, M.D., State Health Officer and Chairman of the South Carolina Pollution Control Authority. In these capacities, I represent the only legally constituted agencies whose official concerns are for the health of the people of South Carolina and the protection of the environment from waste products discharged into it.

"The purpose of this statement is to acquaint the Atomic Energy Commission and this Board with the knowledge that our agencies support the application by Duke Power Company for licenses to build and operate the nuclear power generating facility known as the Oconee Nuclear Station, Units 1, 2 and 3, in Oconee County, South Carolina.

"We have had many occasions in the past to become acquainted with Duke Power Company in matters pertaining to fossile-fueled generating plants and have found them to be competent and quite cooperative.

"Our staff has had the privilege of associating indirectly with this company in its position as a member of the Carolinas-Virginia Nuclear Power Associates, which has operated the experimental nuclear power plant at Parr, South Carolina for several years.

"During the several years surrounding the construction and operation of the Parr Reactor, our staff conducted, and is conducting, environmental surveys to insure the health and safety of our citizens. Very close cooperation between our staff and the CVNPA staff has always existed, including technical assistance when monitoring equipment became inoperative, the sharing of samples and information and many other evidences of mutual help. This same spirit of cooperation on the part of Duke Power Company has already been demonstrated in this endeavor. Assistance has been pledged in the matter of locating sampling sites during the pre-operational and post-operational phases for surveillance purposes. All information sought by us has received prompt

attention. In short, Duke Power Company has displayed complete willingness to assist our agencies in the discharge of their responsibilities.

"The Safety Analysis Report and Amendments have been analyzed by our staff, as have the comments made by the National Center for Radiological Health of the U.S. Public Health Service. As a result of these analyses, we see no reason why the operation of the Duke Power Company's Oconee Nuclear Station in the manner specified should contravene any of our requirements.

"Personally, and in our official capacity, it gives us considerable pleasure to say again that we endorse the application for the license being sought by the Duke Power Company."

Thank you, Mr. Chairman.

CHAIRMAN JENSCH: Thank you, sir.

Mr. Lightsey, do you have an additional participant?

MR. MORRIS: I am not the lawyer, but Mr. Lightsey had an emergency phone call from his office and asked to be excused momentarily and requested me to present the next witness.

CHAIRMAN JENSCH: Would you do so, please?

MR. MORRIS: Yes, sir. Representing the South

Carolina Public Service Commission which is a regulatory agency for utilities in South Carolina is Mr. L. Rogers Miller, who is Director of the Electrical Utilities Division. He has a statement from the Chairman of the Commission, the Honorable Clyde F. Boland, and also a statement from a member of the Commission, the Honorable A. D. Amick, who is a member of the NARUC Committee on Nuclear Energy in the Electrical Industry.

CHAIRMAN JENSCH: Mr. Miller, would you come forward, please?

MR. MILLER: Mr. Chairman, both of these communications are addressed to you.

"Dear Chairman Jensch: The South Carolina Public Service Commission has regulatory authority over the privately-owned electric utilities operating in this State and in the exercise of this authority is familiar with the operations of Duke Power Company.

"The growth of the electric industry in the Southeast, and particularly in South Carolina, requires additional generating capacity in the immediate future, and Duke Power Company and the other utilities under jurisdiction of this Commission are continually planning and building new generation to take

care of the increased requirements in this area.

"This Commission's knowledge of the management and operations of Duke Power Company indicates that the company is financially qualified to construct, own and operate the nuclear facilities proposed in AEC Dockets No. 50,269, No. 50,270 and No. 50,287.

"Our studies indicate that the proposed nuclear plant will result in the most economical addition to the power supply of this area.

"Sincerely yours, Clyde F. Boland, Chairman."

Second letter:

"I am a member of the National Association of Railroad and Utilities Commissioners' 'Committee on Nuclear Energy in the Electric Industry" and feel that the art of using the heat of a nuclear reaction in the generation of electric power is so well advanced that, with the safeguards required by the Atomic Energy Commission, a nuclear-fueled electric generating station is no more hazardous than a fossil-fueled plant and that when the overall cost of nuclear-fueled electric energy is less than the cost of conventional-fueled electric energy, then the nuclear-fueld plant should be

constructed.

"As a member of the South Carolina Public Service Commission, I know that the growth of the electric industry in the Southeast, and particularly in South Carolina, requires additional generating capacity in the immediate future, and Duke Power Company and the other utilities under jurisdiction of this Commission are continually planning and building new generation to take care of the increased requirements in this area.

"From the information presently available it is apparent that the proposed nuclear-fueled generation to be provided by Duke Power Company under Docket No. 50,269, No. 50,270 and No. 50,278 will provide the most economical additional electric power and energy to this area.

"Very truly yours, A. D. Amick, Member, NARUC Committee on Nuclear Energy in the Electric Industry."

Thank you, Mr. Chairman.

CHAIRMAN JENSCH: Thank you, Mr. Miller.

Mr. Lightsey, do you have an additional participant?

MR. LIGHTSEY: Yes, sir. Mr. Chairman, at this

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time I would like to present Mr. Robert Blair, from the South Carolina Development Board, who is the consultant for that Board on atomic energy.

CHAIRMAN JENSCH: Mr. Blair, will you come forward, please?

MR. BLAIR: Chairman Jensch, Dr. Paxton and Dr. Buck: I am pleased to have this opportunity to present a statement at this important hearing. My name is Robert C. Blair. I am a registered professional engineer and was associated with the United States Atomic Energy Commission's Savannah River Project near Aiken, South Carolina, since its inception in 1950, and as the Manager of Operations for ten years prior to retirement in December 1965.

Administration of major contracts for research, development and conceptual design of nuclear power reactors was a significant responsibility of my office requiring current knowledge of similar programs conducted elsewhere by government and private industry.

It has been gratifying to observe the growing acceptance of this new form of power generation and particularly pleasing to recognize the progressive attitude of the Duke Power Company and other Southern utilities in taking a leading role in building these advanced plants on their systems.

Since retirement I have served as a consultant

in Atomic Energy matters to the Development Research Center of the South Carolina State Development Board. In this capacity I have had access to the voluminous and comprehensive reports prepared by the Duke Power Company to satisfy the requirements of the Atomic Energy Commission and prerequisite to its issuance of a construction permit for the three nuclear stations proposed in Oconee County.

I find impressive the expertise employed in the studies and reports and the extent to which recognized authorities have been consulted to confirm the validity of the design and operating features of the plants and their resultant compatibility with accepted environmental standards for the protection of the health and safety of the public.

The plants will favorably stimulate the economy of the area in which they are located, and I believe that great benefits of state-wide importance will also accrue from industries which might be expected to locate in the state to provide plant services and to utilize by-products.

Spent fuel reprocessors, fabricators of fuel elements, and the producers of radioisotopic devices and related industries should find a climate favorable to their operations and a growing market throughout the

Southeast for their products and services.

The Duke Power Company is to be congratulated for undertaking the Keowee-Toxaway Project and merits full support for its inclusion of nuclear electric generating stations in the initial plan.

I am pleased to have the opportunity to endorse this advanced and very worthy nuclear project.

Thank you.

CHAIRMAN JENSCH: Thank you, Mr. Blair.

Mr. Lightsey, do you have a further participant?

MR. LIGHTSEY: Mr. Chairman, I do have one. I would like to state for the record, though, before I present him, that Mr. Blair, whom you have just heard, has considerable background and experience in the field of nuclear energy from 1950 through 1965. He was associated with the Atomic Energy Commission and from 1955 through 1965 was manager of operations of the Savannah River Plant in South Carolina.

Mr. Chairman, at this time I would like to present Dr. Henry C. Schultze, Director of the Development Board's Research Center in South Carolina Development Board. This is the agency in South Carolina that is responsible for promoting long range development and is responsible for promoting the growth of private atomic energy facilities in South Carolina.

Dr. Schultze has been with the Development Board for two and a half years and was with the Union Carbide Corporation for twenty-four years in research and development prior to that time.

Dr. Schultze I think will also present a statement on behalf of the Governor of South Carolina who was unable to be present today because of previous commitments. But, Mr. Chairman, I would like to mention for the record that according to my file the statement of the Governor was filed with the Atomic Energy Commission on August 10, 1967, and should appear in the docket.

CHAIRMAN JENSCH: Very well. Dr. Schultze, will you come forward, please?

XXX DR. SCHULTZE: Mr. Jensch, Dr. Paxton, Dr. Buck: I am Henry C. Schultze, Director of the South Carolina State Development Board's Research Center. The work programs of our Center are concerned with long-range planning to facilitate the optimum economic development of our State; with the marshalling of diverse research resources within the State for our economic advancement; and with the administration of Federal-aid programs of economic importance to South Carolina.

Governor McNair has delegated administrative and technical responsibilities for the promotion of private atomic energy industry within South Carolina to

the State Development Board and its Research Center. It is a pleasure accordingly for Mr. Robert C. Blair and I to have the opportunity for representing both Governor McNair and the State Development Board at this important public hearing. Each of us is very personally and technically interested in the Keowee-Toxaway Project. We have followed all aspects of this project closely. We are grateful to personnel of Duke Power Company for the excellent working r pport we are enjoying with them and for the diligence and thoroughness with which they have kept us informed on technical matters of mutual importance to themselves, to South Carolina, and to our people.

I will now proceed to read the statement by Governor McNair which was given to me earlier and which was submitted by him on August 10, and entered into your records on August 16, 1957.

CHAIRMAN JENSCH: Will you proceed, please?

DR. SCHULTZE: The letter is as follows:

"Dear Mr. Jensch: South Carolina is vitally interested in the development of the private atomic energy industry. Our people have quiently acclimated themselves to atomic energy interests and operations since 1950 when the U. S. Atomic Energy Commission

announced and began construction of its Savannah River Plant. The later installation of facilities at Charleston for servicing nuclear-powered naval vessels, and the operation of the prototype 17 megawatt nuclear-electric generating station at Parr by the CARVA group of utilities have each received our strong support.

"In May of this year our Legislature enacted South Carolina's new Atomic Energy and Radiation Control Act to indicate that our State desires to provide the means for discharging its proper functions for promoting the optimum growth of private atomic energy facilities consonant with the full consideration of the health and safety requirements of our people.

"Thus we are pleased, but not surprised, with the surge of annoucements during 1966 and 1967 from private utilities to build major nuclear-electric generating stations at two locations in South Carolina and at five additional locations in Virginia, Alabama, Georgia and Florida. This spectacular growth of new generating stations in the Southeast is based on sound economics, and it is

indicative of the significant changes taking place in our region wherein the utility companies are preparing themselves for meeting the anticipated greater energy demands of our people over the next several decades.

"On behalf of all South Carolinians, I warmly endorse the foresign shown by Duke Power Company and by Carolina Power and Light Company to place their initial nuclear power stations within our borders. We find from our careful analyses of each of the programs of work to be undertaken by these two firms that all possible diligence has been exercised to protect the safety of the public and that there is nothing to be questioned on our part as to the suitability of the nuclear electric generating structures for their prospective uses.

"The installation of these nuclear power stations in our midst, together with South Carolina's existing resources in atomic energy opens a full spectrum of new opportunities that are essential to our future economic growth.

"Our State can gain additional sophisticated facilities based on the full nuclear fuel cycle wherein the manufacture of power reactor components

will be coordinated closely with the fabrication of nuclear fuel elements and with the chemical regeneration of spent nuclear reactor charges. These with other supporting science-based industries and also research and development laboratories will offer richly rewarding careers to our young people and to those from other States in diverse applied science and engineering fields. South Carolinians must and will rise to accept these future challenging responsibilities.

"In recognizing the importance of the of the nuclear-electric generating stations to our economy, we are particularly impressed with the additional tangible benefits which will accrue to South Carolina from the large investment by Duke Power Company in its Keowee-Toxaway project. Enhanced recreational resources will be provided for our people in Oconee and Pickens Counties. Improved water supplies can be made available to our cities and towns adjacent to the lakes impounded by the project. Expanded opportunities for proficient management of wildlife resources are evident, and new areas of unparalleled

beauty will be opened for our people to enjoy.

"Personnel of Duke Power Company and of the contracting firms participating in the construction of the Keowee-Toxaway project are assured of our full support and services whenever these may be necessary. South Carolinians are indeed proud and appreciative of their efforts."

I now continue briefly with my statement. It is somewhat superfluous for me to enlarge on the fine summaries by Governor McNair and by Mr. Blair which adequately express our complete satisfaction with the safety, technical, and economic aspects of the plans of Duke Power Company for its Oconee Nuclear Station. It is more appropriate, I feel, to emphasize again the impact of the Duke project on the future economy of this section of our State.

Borrowing from Governor McNair's statement, "...opens a full spectrum of new opportunities that are essential to our future economic growth...," it is very practical to foresee that this fine investment by Duke Power Company materially strengthsn South Carolina's resources in atomic energy and enhances our opportunities for gaining sophisticated science-based industries together with research facilities that will add markedly to this region's optimum economic development and to that of South Carolina.

I have been personally cognizant of the large strides made during the past twenty years by both Oconee and Pickens Counties in terms of gaining more diversified, remunerative, and individually rewarding environments. Now among all South Carolina counties, these two counties, by reason of the Keowee-Toxaway Project, stand on the threshold of an unparalleled opportunity for accelerating their economic development and for providing further the environments to hold more of their young people at home and to secure others with sophisticated technical skills so urgently needed in South Carolina's economy. This is one essential, practical, long-range reward from the Keowee-Toxaway Project which will warrant our continued close cooperation at the State and local levels with Duke Power Company. We know of their keen interest in these objectives, and we assure them also of our full support.

Thank you.

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CHAIRMAN JENSCH: Thank you, Mr. Schultze. Does that conclude your presentation, Mr. Lightsey?

MR. LICHTSEY: Mr.Chairman, that concludes the presentation on behalf of the State. I do have, I think I have handed up extra copies of all statements except those of Congressman Dorn to the Board, and I have three copies which he has asked I hand up to the Board.

CHAIRMAN JENSCH: We will receive them. Will you bring them up, please?

MR. LIGHTSEY: Might I make one other request? Several of these State agency officials have requested if possible that they might be excused because of the press of their official duties.

CHAIRMAN JENSCH: Any objection? I hear no objection. Permission granted.

Is there any other person present here who seeks to participate in this proceeding by way of a limited participation?

MR. ENGELHARDT: Mr. Chairman?

CHAIRMAN JENSCH: Staff Counsel?

MR. ENGELHARDT: I am not aware whether the Board has available to it a communication from an individual who identifies himself as the president of the North Carolina Municipally Owned Electric Systems Association. This is a letter dated August 22, 1967, addressed to the Chairman of the United States Atomic Energy Commission, and the first line

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of this letter states: "I respectfully request that this letter be received, filed, and made a part of the record in the hearings in subject dockets."

And identifies the dockets for this application, Dockets 50, 270, and 287.

CHAIRMAN JENSCH: Do you present that request, the, for consideration?

MR. ENGELHARDT: I merely identify this letter as having been received by the Commission, and I will call it to the Chairman's attention for appropriate disposition.

CHAIRMAN JENSCH: Very well. A copy of the letter addressed to the Chairman of the Atomic Energy Commission was furnished to members of the Board. Do the other parties have copies? Does the applicant have a copy?

MR. GRIGG: No.

CHAIRMAN JENSCH: I have a copy. You may look at this copy I have.

MR. ENGELHARDT: I have some extra copies here.

CHAIRMAN JENSCH: Please furnish a copy to the applicant. Do the intervenors have a copy?

MR. HARRIS: Yes.

CHAIRMAN JENSCH: Before we proceed to inquire if there is any objection to the request of the letter, it's somewhat irregular practice at a hearing of this kind, and at the outset, to request staff counsel to make an outline of

r3 this project, some of the problems that he envisions were
present and the evidence he intends to adduce. Does staff
counsel desire to make such a statement at this time?
MR. ENGELHARDT: The staff is prepared to make
its opening statement if the Board would like to have that
statement now. This would be my statement and the statement
of Mr. Grimes, who is a member of the technical staff.
CHAIRMAN JENSCH: If it's an opening statement,
perhaps we had better defer for a moment until we have a
further request. Is there any other person present here
who seeks to make a statement and thereby participate in a
limited way in this proceeding?
The Board hears no such request. Have applicant's
counsel had an opportunity to review this letter to which
staff counsel referred?
MR. GRIGG: We have no objection to this being read
and/or introduced into the record.
CHAIRMAN JENSCH: Any objection by intervenors?
MR. REEDER: We have not seen it, but we have no
objection.
CHAIRMAN JENSCH: Staff counsel now hands a copy
to you. Does staff have any objection to integrating the
letter as if read?
MR. ENGELHARDT: Staff has no objection to integrating
it as if read.

VOICE : We have no objection to the reception of this letter.

CHAIRMAN JENSCH: This letter would not constitute evidence, but will be integrated in view of the lack of objection into the transcript as if read. I believe now we have concluded all the preliminary matters, and may proceed to an inquiry of whether the parties desire to make any opening statements. We have continued this session of this proceeding this morning somewhat longer than usual in view of the presentation of statements by limited participants, but we thought perhaps we could receive the opening statement if any and then adjourn or recess for lunch and begin after lunch with the consideration of other matters, or the reception of evidence.

Does the applicant desire to make an opening statement of the position it will assert in this proceeding and the evidence it intends to adduce?

MR. GRIGG: Yes, Mr. Chairman.

CHAIRMAN JENSCH: Will you proceed, please?

MR. GRIGG: Mr. Chairman and members of the Board: it's our purpose today and in the course of this hearing to attempt to inform the public of the nature of the Oconee Station, its design, and of the care that has gone into insuring its complete safety. The issue is whether Duke Power Company is technically and financially qualified to design and construct the Oconee Station.

Whether the issuance of a construction permit will be inimical to the common defense and security of the Nation, and whether the plant can be constructed and operated without undue risk to the health and safety of the public. The applicant accepts the burden of proof in these issues, and we will attempt in the course of this hearing to restrict that burden to evidence which can be understood by everyone here. The regulatory process through which an applicant for a construction permit must go is stringent and thorough. The application for authority to construct the Oconee Station is a voluminous document.

It consists of three volumes of over 1,000 pages of detailed technical design data. It's the product of many years of study, research, and operating experience, and countless thousands of man-hours of work. Its orientation, indeed, its raison d'etre, is the assurance that the Oconee Station can and will built and operated without undue risk to the health and safety of the public.

During the nine months that have intervened since it was filed, the application, the applicant, and his principal supplier, the Babcock and Wilcox Company, have been under close scrutiny which the staff of the Atomic Energy Commission's Division of Reactor Licensing, the expert consultants retained by the staff and by other agencies of Government have conducted. Inquiry of the staff and his consultants has been narrow. It

has not, as Chairman Jensch pointed out this morning, dealt, for example, with such matters as conservation, aesthetics, and thermal effects. These are matters reserved to other agencies and which have been or will be thoroughly reviewed by those agencies.

The staff's inquiry has gone almost exclusively to questions of health and safety, but within this relatively narrow range the inquiry has been extremely deep. Representatives of the applicant and his suppliers have met with the staff on numerous occasions to discuss and to evaluate the Oconee plant from a safety standpoint. We have answered many searching questions concerning plant design, and we have furnished in minute detail the technical data which we and the staff have felt was necessary for a full and comprehensive safety analysis.

The application, as the Chairman also indicated, has also been reviewed by the Advisory Committee on Reactor Safeguards. This Committee consists of 15 nuclear scientists and engineers who were drawn independently from the academic and industrial communities and who represent all of the disciplines necessary for a full evaluation of reactor safety.

Representatives of the applicant and their suppliers and consultants have met with the Advisory Committee on Reactor Safeguards on two occasions and the sub-committee on three occasions to review plant design and answer questions

concerning safety. The ACRS review is extremely thorough. It has been compared by one authority to the examination for the Ph. D. degree. Yet, if it please the Board, after all of this, the regulatory process has scarcely begun. We are asking here only for a permit to construct the plant. If it is granted, the Atomic Energy Commission, through its Division of Compliance, will scrutinize construction to insure compliance with the permit and with applicable regulations. Then, after construction has been completed, assuming a construction permit is granted, many months from now there will be proceedings for an operating license.

At that time the Commission will have a full opportunity to evaluate the completed design and to determine whether Duke Power Company is financially and technically qualified to operate the plant. If an operating license is granted, the Division of Compliance will continually be with us to insure safe operation throughout its life. But, as rigorous as the regulatory process must necessarily be in the public interest, we nevertheless realize, and we want to emphasize, that the ultimate responsibility for the safe construction and operation of the Oconee Station rests, not with the Atomic Energy Commission, not with the staff, but with Duke Power Company, the applicant.

We had been arduously preparing for that responsibility for some 14 years now, and we believe we will be able to establish

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in the course of this hearing that we are now ready to assume it.

Now briefly I would like to summarize what evidence we expect to present in addition to the application and its supporting documents.

Our first witness will be Mr. Willian S. Lee, Vice President, Engineering of the company, who will describe the reactors and the site. He will emphasize the measures which have been taken in the design of the plant and which will be taken in its construction and operation to insure the public health and safety.

Our second witness will be Mr. Edward C. Fiss, Nuclear Engineer of Duke Power Company, who will describe Duke Power's experience in the design, construction and operation of the Parr Nuclear Plant at Parr, South Carolina and how this experience will be of benefit to us in the construction of the Oconee Station.

Our third witness will be Mr. R. E. Frazer, Assistant Treasurer of Duke Power Company whose testimony will relate to our financial qualifications to construct the plant.

Our next witness will be a panel of eight experts who will collectively sponsor a document which we call a partial summary of application.

These witnesses will be Mr. W. S. Lee, Mr. L. S. Dale, Mr. C. J. Willey, Mr. W. H. Owen, all of Duke Power Company. Mr. D. W. Montgomery, Mr. J. H. MacMillian,

Mr. R. E. Washer, all of the Babcock and Wilcox Company.

Mr. J. J. Tassick of the Bechtel Corporation.

We will also have sworn a group of 19 experts whom we call back-up witnesses who will be available for questions by the Board, staff, intervenors or by reference from the panel. These experts will not sponsor any direct evidence other than their own professional qualifications.

Briefly as to the manner of presenting evidence.

If the Board please, Mr. Lee's testimony, Mr. Fiss' testimony and Mr. Frazer's testimony will be read aloud at the hearing. Printed copies of all of our evidence, all of our testimony is available at the rear of the room. We feel that it would be advisable however to have these three witnesses present their testimony orrally because there are perhaps some present who have not had an opportunity to read their written testimony and it might be helpful to them if it is presented orally.

We will not ask that the partial summary of application be presented orally but at the appropriate point in the proceedings we will ask it be incorporated into the record as if read.

Mr. Chairman, this concludes my opening remarks.

At this time, if it please the Board, I would like to defer to Mr. B. B. Parker, who is Executive Vice President of Duke Power Company for an unsworn statement.

CHAIRMAN JENSCH: Before proceeding in reference to Mr. Parker, does staff counsel desire to make his opening statement at this time?

MR. ENGELHARDT: I think it might be appropriate for the applicant's opening statements, including Mr. Parker's statements, to be completed and then we will follow with our statements.

CHAIRMAN JENSCH: Mr. Parker, will you come forward, please?

Perhaps it would be more convenient to you to speak from the rostrum. If you care to take the witness chair, adjust to your own convenience.

MR. PARKER: I can do either.

CHAIRMAN JENSCH: I am sure all can hear you where you are now located. Proceed, please.

XXXX MR. PARKER: Mr. Chairman and members of the Board:

I am B. B. Parker, Executive Vice President of Duke Power Company, the Applicant in this proceeding. I wish to make a brief statement concerning our company, with particular reference to the Oconee Nuclear Station -- why the decision was made to build it, how we plan to finance it, and the role it will have in our future growth and development.

Duke Power Company is an electric utility serving over 850,000 retail and wholesale customers. Its service

area comprises about 20,000 square miles in the central portion of North Carolina and the western portion of South Carolina. This area has a population of appxoimately 3,000,000.

Duke owns and operates nine cola fired steam electric generating plants with a net capability of 4,041,010 KW and 30 hydroelectric plants with a net peak capability of 883,590 KW. Industrial expansion and population growth in our service area has been well above the national average, and the demand on our system has increased commensurately. Our annual rate of system growth has been over 8 percent for the past several years. We expect this rate to continue at least over the next five years. Our peak load in 1966 was 4345 mw. We estimate that in 1972 it will be about 6,920 mw. This means that we will have to be prepared to meet a peak demand in 1972 that is approximately 59 percent higher than that experienced in 1966.

In order to be able to meet this demand we have under construction or in various stages of design several additional generating facilities. Two coal-fired steam units of 682,000 Kw capability each are under construction at Plant Marshall in North Carolina. These units are scheduled for operation in 1969 and 1970. We are also adding to our system five combustion turbines with a maximum capability of 32,000 KW each. These turbines will be used primarily for peaking and emergency power. The first is scheduled for operation

later this year.

Of particular interest to the residents of this area of South Carolina is the fact that we have begun construction of our Keowee-Toxaway Project. This project will intially consist of the Keowee Development, scheduled for operation in late 1970, with a capability of 140,000 KW of hydroelectric power, and the Jocassee Development, with a capability of 160,000 KW of conventional hydroelectric power and 150,000 KW of pumped storage hydroelectric power. The Jocassee Development will be operational in 1974 and will have an additional 300,000 KW pumped storage capability when justified by the company's load.

Lake Keowee will provide condenser cooling water for several steam-electric generating plants, of which the Oconee site is the first proposed for development. If a construction permit is granted, the Oconee Nuclear Station, with an ultimate net electrical capability of about 2,622,000 KW, will be built near Lake Keowee and will use its water for condenser cooling. I might add that construction of the Oconee Nuclear Station will be started as soon as a construction of the Oconee Nuclear Station will be started as soon as a construction permit has been issued.

At the time of the summer peak period of 1972, Oconee Units 1 and 2 should be able to provide about 24 percent of Duke's load requirements. Unit 3, of course, is

not scheduled for operation until 1973. When all three units are operational in 1973 their capacity will represent about 33 percent of our load requirements at the time of system peak.

The three Oconee units are expected to cost about $278,000,000. The initial fuel cores are expected to cost an additional $63,000,000. Construction will be financed as an integral part of the company's total construction program. We estimate that approximately 40 percent of the funds required for the construction program through 1971 will be obtained from retained earnings, provisions for depreciation and other internal sources, and approximately 60 percent through short-term borrowings and the issuance and sale of securities. The types of securities to be issued will depend upon market conditions at the times of sale and will be consistent with the maintenance of desirable capitalization ratios. I might say that all of Duke Power Company's bond issues in recent years have been rated AAA, and that none mature prior to 1975.

I would like to explain briefly why it was decided that the Oconee units should utilize nuclear fuel rather than fossil fuel. In order to do so, it is necessary to describe our interest and experience in nuclear matters.

We first became interested in the possibility of nuclear generation of electricity when Congress passed the

Atomic Energy Act of 1954. This Act permitted the use of special nuclear material by private industries for the first time.

In 1955, about a year after passage of the Act, Duke Power Company sponsored an extended course in nuclear engineering taught by Dr. Harold Lewis of Duke University. Responsible personnel from all departments associated with the design, purchase, construction, operation and maintenance of generating facilities participated. Key personnel in these departments have continued their study of nuclear power through industrial contacts and a Nuclear Power Technical Committee which we have formed within the company. This committee has served to disseminate information relating to developments in the design, construction and operation of nuclear power stations to interested personnel. Certain of our personnel have also taken short courses, attended seminars, participated in industry committees and made visits to various nuclear power stations in the United States in order to keep abreast of developments in the nuclear power field. Just last year, 80 key personnel in the departments which I have mentioned underwent a special training program in nuclear power, including 84 hours of classroom instruction by representatives of The Babcock and Wilcox Company and the Bechtel Corporation.

In 1956 Duke Power Company joined with three major

utilities to form Carolinas-Virginia Nuclear Power Associates for the purpose of building and operating a 17,000 KW nuclear steam generating plant at Parr, South Carolina. This project was undertaken for research and for operating and engineering experience under licenses granted by the Atomic Energy Commission. Its research program was successfully completed earlier this year, and its shutdown was recently announced by the member companies. Evidence to be presented later in this hearing will more fully describe the extent of Duke Power's participation in the Parr project.

From our study of nuclear power and the favorable experience we have had with the Parr facility, we became convinced that the generation of power with nuclear energy is not only feasible but highly desirable, both from economic and operational points of view. In early 1966 we asked four suppliers of nuclear steam supply systems to subuit proposals for the Oconee Station. After a thorough study of these proposals and after careful consideration of other types of plants a contract was awarded to The Babcock and Wilcox Company. The qualifications, experience and responsibilities of this company will be more fully described later in this hearing. I will state at this point, however, that their work on our project thus far has been satisfactory in every respect, and we are confident that the Oconee reactors will be a safe and efficient source of power for our

system and that our plant will be a good neighbor for the residents of Oconee County.

I might also note that our views on nuclear power are generally shared by other electric utilities. Their confidence in nuclear power is evident in the fact that over 50 percent of all of the new generating capacity announced by electric utilities in the United States during 1966 will be nuclear; and even more nuclear generating capacity was announced during the first six months of 1967 than during the same period in 1966.

We are well aware of the public's great interest in atomic energy. In conjunction with construction of the Oconee Station, we have planned an attractive visitors' center to be located near the site. This center will contain exhibits and other information concerning the station and nuclear power generally. It will also include items of local historical interest. I might also add that we are aware of the importance of recreation and conservation and the opportunities which a development such as the Keowee-Toxaway Project provides for them. In that connection we have undertaken an extensive forestry and wildlife program and plan to provide access areas and other facilities for the public enjoyment of our lakes. The company will announce more detailed plans in this regard as construction progresses.

Thank you, and I am available for any questions or --

CHAIRMAN JENSCH: You will be avilable now and later?

MR. PARKER: Yes, sir.

CHAIRMAN JENSCH: Very well.

Thank you, Mr. Parker. We don't have any present questions. If we do, we will look forward to your participation.

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MR. GRIGG: Mr. Chairman, this concludes our opening remarks.

CHAIRMAN JENSCH: Very well. Will the staff proceed with its opening statement?

MR. ENGELHARDT: Yes. Under the provisions of the Atomic Energy Act of 1954 as amended, the Atomic Energy Commission is responsible for licensing and regulating possession and use of atomic energy materials and nuclear facilities such as nuclear reactors in order to protect the health and safety of the public from radiation hazards.

The Atomic Energy Act makes it unlawful for any person to begin the construction of a nuclear reactor until the construction permit has been issued by the Commission, or to operate a reactor except in accordance with an operating license issued by the Commission. Commission's regulations require applicants who propose to build and operate reactors to include in their applications the technical information required to support the application.

The application must include a safety analysis report containing the technical information required for an evaluation of the safety of the proposed facility, including the suitability of the site, the design of the proposed facility, and demonstrating that adequate safeguards will be engineered into the facility to prevent the occurrence of accidents and to minimize the consequences of any accident which might occur.

All information contained in the application and all correspondence between the Atomic Energy Commission and the applicant, including additional information requested by the AEC Regulatory Staff, is placed in the Commission's Public Document Room in Washington, where it may be examined by any interested member of the public. The first stage of the review of an application for a permit to construct a nuclear reactor such as Units 1, 2, and 3 of the Oconee Nuclear Station involves a staff evaluation of that application.

The application is evaluated by technical specialists on the Commission's Regulatory Staff and their expert consultants, and also by the Commission's Advisory Committee on Reactor Safeguards. The Advisory Committee is an independent committee established by the Congress to advise the Commission on matters of facility safety. It's composed of scientists and engineers who are specialists in the various disciplines important to facility safety.

The report of the Advisory Committee on Reactor Safeguards and the technical analysis of the safety considerations relevant to the proposed facility prepared by the AEC's Regulatory Staff, called a "safety analysis," are made public prior to the hearing on construction permit applications. The Atomic Energy Act requires that a public hearing be held on each application for a permit to construct a facility. These hearings are conducted by this three-man Atomic Safety and

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Licensing Board. The decision of the Board is subject to review by members of the Commission upon their own initiative or upon petition by a party in the proceeding.

Before a construction permit is issued to an applicant, the Commission must first find that there is reasonable assurance the applicant will comply with the Commission's regulations, that the health and safety of the public will not be endangered, and that the applicant is technically and financially qualified to engage in the proposed activity, but the Commission's interest in the facility does not end with the issuance of the construction permit.

The facility is subject to periodic inspection by Commission inspectors to assure that the facility is constructed in accordance with provisions of the construction permit. Before an operating license may be issued, the applicant must file with the Commission an application for such a license, which contains detailed information regarding the completed design of the facility, a detailed description of the facility and its components, and operating plans and procedures.

This application is given the same detailed review by the Regulatory Staff and the ACRS as was the case at the construction permit stage. Also, before issuing an operating license for a nuclear reactor, the Commission publishes in the Federal Register a notice of its intent to do so, and offers any interested person an opportunity to request a hearing.

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If the Commission determines that the proposed operation of the facility involves safety problems of unusual significance, it may on its own initiative require another public hearing. The same procedure is followed with respect to requested amendments to either a construction permit or a license. In the hearing today, Mr. Charles Long and Mr. Brian Grimes will testify for the AEC Regulatory Staff on the technical aspects of the application and will be available for cross examination.

Their testimony is contained in the staff Safety Evaluation. The staff will also offer testimony of Mr. Charles A. Lovejoy of the Office of the Comptroller of the Atomic Energy Commission with respect to the financial qualifications of the applicant. Copies of the staff's Safety Evaluation and copies of Mr. Lovejoy's testimony and the statements of the technical qualifications of the staff's witnesses are available on the barrier or counter behind counsel's table.

As Mr. Grigg indicated, several witnesses will be presented by the applicant in this hearing. The staff has extensively questioned during the course of his extensive review of the application. The answers to many of these questions are found in the various amendments to the application. Consequently, the staff will have very few, if any, additional questions to ask of witnesses for the applicant in this proceeding.

That concludes my opening statement, Mr. Chairman. However, with the Board's permission, I would like to request Mr. Grimes to supplement this statement by describing the staff's evaluation of the application, the reasons for the conclusions reached by the staff, and summarizing the various steps taken by the staff and the ACRS in their review of this application.

CHAIRMAN JENSCH: Very well. Mr. Grimes, would you proceed?

MR. GRIMES: By an application dated November 28, 1966, and subsequent amendments, the Duke Power Company applied to the Atomic Energy Commission for construction permits and facility licenses for three nuclear reactors to be built at Duke's Oconee Nuclear Station in Oconee County, South Carolina.

The nuclear steam supply system, including the reactor core, primary system, and steam generators will be supplied by the Babcock and Wilcox Company. The construction of the plant will be performed by Duke, which has retained the Bechtel Corporation as a general design consultant. We have reviewed the technical qualifications of these companies and believe they are suitably qualified to design and construct the proposed reactors.

In this summary statement, we will first outline the course and scope of our review and then discuss the items which have particular safety significance for this application.

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Our technical review has been based on the Preliminary Safety Analysis Report and several amendments to the application. The amendments were submitted in response to our requests for additional information, which were a result of meetings with the applicant in which technical aspects of the proposed design were discussed. Our review of the site-related aspects of the three units was aided by advice from the United States Weather Bureau, the United States Coast and Geodetic Survey, the United States Geological Survey, and the United States Fish and Wildlife Service. We also received assistance from Nathan M. Newmark and Associates in reviewing the seismic design of the station structures.

The thermal and hydraulic characteristics of the reactor core were analyzed and evaluated at 2,452 megawatts thermal, even though the applicant believes that eventually, after operating experience and additional development information are evaluated, the power rating can be safely increased to 2,568 megawatts. The design of the major systems and components of the proposed plant, including the emergency cooling systems and containment structure, which bear significantly on the acceptability of the plant under the site criteria guidelines identified in 10 CFR Part 100, have been analyzed and evaluated by the applicant and the staff at the ultimate core power level of 2,568 megawatts thermal. Before operation at any power level above 2,452 megawatts can be authorized, how-

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ever, the Commission is required to perform a safety evaluation to assure that the core can be operated safely at the higher power level.

The steam system design is, on the whole, not unlike other pressurized water reactor designs for which construction permits have recently been issued. The fuel enrichment, fuel design, and arrangement of core internals are similar while differing in design detail. Except for the once-through steam generator, the proposed design is founded on proven concepts and its similarity to other current designs for pressurized wator nuclear plants provides a degree of assurance that a reactor of this type can be successfully built and operated.

We have carefully reviewed all aspects of the nuclear steam system design. This includes review of the nuclear, mechanical, thermal and hydraulic, rod drive, instrumentation and control, reactor coolant, and secondary steam systems. Similarly, the auxiliary systems, electrical systems, engineered safety features and containment were reviewed in detail. The containment will use pre-stressing in cylinder walls and dome and is similar to other recent designs by the Bechtel Corporation. Our Safety Evaluation dated August 4, 1967, summarizes our evaluation of these design aspects as well as our review of the suitability of the proposed site for the construction of these three reactors.

In addition to determining the adequacy of each

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aspect of the reactor design, we compared proposed facility and site features with those of other current-generation pressurized water reactors. We found that the most significant differences were as follows:

(1) The topography of the proposed site is used to advantage by using the hydroelectric plants in the Keowee Dam as an emergency power source and by using gravity flow from the intake canal to the tailrace of the hydroelectric plants for emergency condenser cooling.

(2) The nuclear steam system will utilize a once-through steam generator which will provide slightly superheated steam to the turbine-generator.

(3) A penetration room ventilation system will maintain a small negative pressure in the penetration room under accident conditions and will filter fission product leakage from containment penetrations.

These three areas were reviewed and, as with the rest of the design, found acceptable.

Since the three units proposed are essentially identical, our approach was to review them as one unit except in the case of certain auxiliary systems such as the service water, which is shared between Unit 1 and Unite 2 and sized separately for Unit 3. We assured ourselves that sharing of systems or components between units would not be detrimental to the safe operation of any unit during normal or emergency

operation.

A number of items will require further work by the applicant during the detailed design of the plant. These include development tests of the steam generator, control rod drives, in-core neutron detectors, thermal and hydraulic aspects of the core and core cooling. In addition, further analytical work is required in the areas of core cooling after a loss-of-coolant accident, xenon oscillations, and positive moderator coefficient.

CHAIRMAN JENSCH: I don't mean to interrupt, but if you have much more, I don't know how well the people in the room are hearing you, and I wonder if it would be convenient to take the microphone and turn to the crowd generally, because the purpose of this presentation is to inform the people of the evidence and the review -- I would hope they would have an opportunity to hear you clearly and if you can make a presentation of that kind, it will fulfil the purpose of the presentation. Will you proceed?

MR. GRIMES: Thank you. The Advisory Committee on Reactor Safeguards has also conducted an independent review of this plant and has made several comments and recommendations in their letter of July 11, 1967, to Chairman Seaborg. We have considered each of these and will be guided by all of them in our continuing review of the Oconee Nuclear Station. The Advisory Committee concluded that these items could be resolved with the staff during construction of the reactors and that

orl0 1 ". . . the proposed Oconee Nuclear Station can be constructed
2 with reasonable assurance that it can be operated without undue
3 risk to the health and safety of the public."
4 A number of features were improved as a result of our
5 review and the ACRS review. These included (1) the addition of
6 a uni-directional clutch on the control rod drive, (2) an in
7 crease from 10 percent to 20 percent non-destructive testing
8 of the containment liner welds as a quality control measure, (3)
9 the separation of the emergency core cooling systems and
10 containment cooling systems so that each unit is served separate-
11 ly, (4) the addition of a device to prevent a vapor lock in the
12 primary system after a loss-of-coolant accident, (5) the
13 addition of an underwater weir in the intake canal which would
14 retain a cooling pond in case of a rapid drawdown of Lake Keowee,
15 (6) the addition of a 100-kilovolt power line which could be
16 separated from the external power grid and fed by gas turbine units
17 at the Lee Station and which could serve as an alternate source
18 of emergency power.
19 In summary, as a result of our review and evaluation
20 of the Duke Power Company's application, we believe that there is
21 reasonable assurance that the Oconee Nuclear Station Units 1,
22 2, and 3 can be built and operated without undue risk to the
23 health and safety of the public. To reach this conclusion,
24 we have considered both the off-site radiation doses which
25 might occur in the unlikely event of an accident and radiation

doses which might result as a consequence of normal plant operation. These radiation doses were calculated based on the ultimate thermal power rating of 2568 thermal megawatts.

The construction permits sought for this station would be the first step in the Commission's regulatory process which would continue throughout the lifetime of the station. Prior to issuing an operating license for this station, the final design would be thoroughly evaluated by the Regulatory Staff of the Division of Reactor Licensing and the Advisory Committee on Reactor Safeguards in a manner similar to the review process at this, the construction permit stage, in order to determine that all of the Commission's safety requirements have been satisfied. The plant would then be operated only in accordance with the Commission's regulations under the scrutiny of the Commission's regulatory staff throughout the plant lifetime.

CHAIRMAN JENSCH: Do you have an extra copy of that statement?

MR. GRIMES: Yes, sir.

MR. ENGELHARDT: For your information and the information of the Board, copies of this statement are available in quantity on the divider behind counsel's desk. I will make copies available to each member of the Board as well.

CHAIRMAN JENSCH: If you will bring three copies to us, we will be appreciative. Have you concluded the staff

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presentation by way of preliminary introduction?

MR. ENGELHARDT: Yes, sir. This completes the staff's opening statement.

CHAIRMAN JENSCH: Thank you very much. Do the intervenors desire to make a statement at this time?

MR. REEDER: The intervenors have been parties to this proceeding, to our knowledge, for only about four hours. We have not yet had time to even read carefully the two orders entered by the Board denying in part our petition for leave to intervene as the Piedmont Cities Power Supply, Inc., and granting in part the petition for leave to intervene for all of the 11 Piedmont Electric cities, nor have we had a chance to study carefully the Board's order which denies the motion to dismiss for lack of jurisdiction as to Oconee Unit 1 and Oconee Unit 2, and defers ruling with respect to the motion to dismiss as to Oconee Unit 3.

We therefore believe that we could make a more useful opening statement after the noon recess and I hope that we will also be able to make a more concise and brief opening statement if we are allowed to postpone it until after lunch.

CHAIRMAN JENSCH: Is there any other matter we might consider before we recess for lunch?

Hearing no request at this time, we will recess this proceeding, to reconvene this afternoon in this room at 2:00.

(Whereupon, at 12:25 o'clock p. m., th hearing was recessed as above noted.)

AFTERNOON SESSION

(2:00 p.m.)

CHAIRMAN JENSCH: Please come to order. In order to make a public announcement. There will be no picture-taking during the course of these proceedings.

There is a call for a Mr. Bill England. If he will come forward, please. We have a message from his office.

Is intervenors' counsel ready to proceed in reference to a statement?

MR. REEDER: Yes, your Honor.

CHAIRMAN JENSCH: Will you proceed, please?

MR. ENGELHARDT: Mr. Chairman?

CHAIRMAN JENSCH: Yes, staff counsel?

MR. ENGELHARDT: Prior to the opening statement of intervenors, would it be appropriate for us to discuss as a procedural matter the status of this hearing at the moment with respect to these orders and to raise -- the orders that you referred to and which were issued by the Board yesterday? Could we at this time discuss the matter of those orders and possibly defer the opening statement? We, too, received copies of the order this morning and have had an opportunity now to review those matters and I think it might be appropriate for a procedural discussion at this point on the significance and the -- to clarify

certain aspects of those orders so we know what the intervenor is doing here prior to the making of their opening statement.

CHAIRMAN JENSCH: Perhaps his opening statement will lead into the discussion. Let him make it, after which we will proceed to a discussion of the orders.

Proceed.

MR. REEDER: Thank you, your Honor.

May it please the Board, my name is Spencer W. Reeder. This is an opening statement on behalf of the eleven Piedmont Electric Cities of Statesville, North Carolina, High Point, North Carolina, Lexington, North Carolina, Monroe, North Carolina, Shelby, North Carolina, Albermarle, North Carolina, Cornelius, North Carolina Drexel, North Carolina, Granite Falls, North Carolina, Newton, North Carolina, and Lincolnton, North Carolina, all of which have been admitted as parties to this proceeding and to a limited extent on behalf of Piedmont Cities Power Supply, Inc., which has been denied intervention in this proceeding subject to the right of appeal to the full Commission.

First I shall point out the tactical objective of the eleven Piedmont Electric cities of North Carolina in this proceeding. Second, my colleague, Judge Harris, will state briefly for the record for the benefit of the Commission

in ruling upon our appeal from the Chairman's order denying the motion to dismiss the application with respect to Oconee Nuclear Station Units 1 and 2 and for the benefit of the Commission in ruling on our anticipated appeal from the Chairman's order denying intervention by Piedmont Cities Power Supply, Inc., the ultimate strategic objective which joint petitioners seek in the litigation which has just begun. Third, my colleague, Mr. Tally, will state concisely the question of national importance raised by our intervention in these proceedings which, despite numerous and rather premature announcements of a contrary result which have appeared from time to time in the public press and over the radio and on television has now been granted.

With respect to the tactical objectives of the eleven Piedmont Electric cities in this proceeding, first joint petitioners will oppose the conclusion that under Section 104(b) of the Act the Commission has jurisdiction to grant to applicant an exclusive research and development license for the pressurized water type reactor to be employed in the Oconee Nuclear Station Units 1, ? and 3.

CHAIRMAN JENSCH: May I interrupt? Is it your thought under Section 104(b) there can be a non-exclusive license?

MR. REEDER: No, sir, it is not. We oppose the

grant of an exclusive license under Section 104(b).

Second. Joint petitioners will support the conclusion that the Commission, under Section 103 of the Act, has jurisdiction to grant to Duke upon proper application a non-exclusive commercial license for the pressurized water type reactor to be employed in the Oconee Nuclear Station Units 1, 2, and 3.

Three. Joint petitioners will oppose a jurisdictional finding of fact by this Board under Section 104(b) of the Act that the pressurized water type of reactor to be employed by Duke does not have practical value for commercial use and will support a jurisdictional finding of fact by this Board that the pressurized water type reactor to be employed by Duke does have practical value for commercial use.

The result of the tactical objectives of the eleven Piedmont Electric cities aforesaid in this proceeding which I have just stated is the dismissal of Duke's application for a mere research and development licensing including a construction permit for the construction and operation of the pressurized water type reactor to be used not once but three times in Duke's Oconee Nuclear Station Units 1, 2 and 3 on the ground of lack of jurisdiction.

And now I yield to Judge Harris who will continue with the opening statement on behalf of the petitioners.

CHAIRMAN JENSCH: Judge Harris, will you come forward, please?

XXX MR. HARRIS: Mr. Chairman, members of the Board, the counsel of Duke and to the counsel representing the staff: I would like to say that the ultimate strategic goal sought by Piedmont Cities Power, Inc., and the eleven Piedmont Electric cities which sponsor power supply in the legal battle which has just begun may be shortly stated.

Number one, Power Supply requests and demands of Duke Power Company the offer of an opportunity to purchase for the benefit of sponsors a 4 percent undivided interest as tenant in common without right of participation in the ownership and capacity of the present proposed Oconee Nuclear Station Units 1, 2 and 3.

CHAIRMAN JENSCH: May I interrupt? Is it your thought that any of such matter is within the jurisdiction of the Atomic Energy Commission?

MR. HARRIS: Yes, sir, it is my thought.

CHAIRMAN JENSCH: Under what section?

MR. HARRIS: Under the sections that provide that the Atomic Energy Commission may issuen license under 103 and 104,but especially under 103.

CHAIRMAN JENSCH: Where is the provision that the Atomic Energy Commission can carve up a private utilities property?

MR. HARRIS: The provision you will find in the 1954 Atomic Energy Act as amended is that part that I can't cite to you by particular section that says that municipalities as persons have a right to participate within the benefits of atomic energy and if I may continue with number two, I believe, and number three, I will answer some of your questions.

CHAIRMAN JENSCH: Please proceed.

MR. HARRIS: Power Supply thus requests and demands of Duke the offer of an opportunity to invest in Oconee for the benefit of sponsors a total of approximately $12,700,000. And, number three, Power Supply further requests and demands of Duke the offer of an opportunity to invest said total for the benefit of sponsors in the following annual installments: 1967, $110,000; 1968, $1,213,000; 1969, $3,539,000; 1970, $3,543,000; 1971, $3,024,000; 1972, $1,184,000; 1973, the sum of $73,000.

Number four, the eleven Piedmont Electric cities thus seek an opportunity to own 60 percent of their current power supply and would remain dependent on privately owned purchased power from Duke and its great system of fossile, atomic and hydrostations for the remaining 40 percent of their total currently power supply.

Number five, the eleven Piedmont Electric cities thus seek a saving in what they pay Duke for purchased

power at current rates of $1.5 million annually for a total saving over the forty year commercial license period of $60 million.

CHAIRMAN JENSCH: Judge Harris, I am having great difficulty following your argument. It is quite an appeal for rate reductions but of course you know that this Commission has no jurisdiction of that subject, do you not?

MR. HARRIS: I am not talking about a rate reduction, sir. I am talking about a participation in the benefits of the atomic energy.

CHAIRMAN JENSCH: I am unable to find any section that authorizes the request that you describe. I would be pleased to have you give the reference. If not, let us proceed to --

MR. HARRIS: In that respect, I would defer respectfully your question to Mr. Reeder or to Mr. Tally in that I think they would be happy to answer that question, sir.

CHAIRMAN JENSCH: Maybe they can do it now.

Mr. Reeder, can you give us the section under which you believe this Commission can carve up a utility's property?

MR. REEDER: Your Honor, Judge Harris has stated the general ultimate objectives of the litigation which has just begun.

In answer to your question, I would say that by the time this litigation is over, I expect that we will have

an opportunity to purchase as a part of the rights of municipalities under the Act to buy into non-exclusive commercial licenses for reactors of a type which has been found to be of practical value for commercial use a fair interest of the type described by Judge Harris in his statement of the objectives which we ultimately seek and there is in our reply, as your Honor knows, to the answers of Duke Power Company and the Regulatory Staff of the AEC, opposing our application for intervention, a number of the non-exclusive license provision together with a citation of the provisions which provide for the enforcement of that provision by a mandatory requirement of an opinion by the Attorney General of the United States on non-exclusive license applications for nuclear power and on the provisions of the Act which give to municipalities in high cost areas a preference in this type of application.

CHAIRMAN JENSCH: Isn't that a preference in case the municipality files an application to construct a facility, the Commission is directed in high cost areas to give preference to that application by a municipality?

Now there is none here, so can we not dismiss that section of the statute? And I am back to my original question of where is there authority granted by the Congress to the Atomic Energy Commission to carve up a utility's property?

MR. REEDER: There is an authority granted in the Act.

CHAIRMAN JENSCH: Non-exclusive license is what, in your opinion?

MR. REEDER: A non-exclusive license is one which under the Act gives all parties who are willing to pay their fair share of the investment cost and the operating cost a right to a fair participation in the license.

Now we do not say that we are entitled to a license to operate or to a license to construct any part of this Oconee Nuclear Station Units 1, 2, and 3. All we say that we are entitled to a license, to acquire -- we are entitled to acquire a part ownership in this system as tenants in common without right of participation of the very same type which several privately-owned utilities are now applying for in the PJM pool where there are pending applications before this Commission by Philadelphia Electric Company made on its own behalf and on behalf of the parties who are providing part of the cost of the investment and part of the cost of the operation an interest as tenants in common without right of participation in the ownership of the physical property and in the capacity --

CHAIRMAN JENSCH: May I interrupt?

Does not a non-exclusive license mean that if Company A files for service in a certain area it doesn't get

exclusive right to serve that area but Company B can also have a license for the same area? It doesn't give Company B a portion of Company A's property, does it? Is there any definition to support that Company B can go in and take a portion of Company A's property under a non-exclusive license?

MR. REEDER: This matter has never been tried out before the Board or before any court for the reason that up to this time no ore has every raised the question which we have raised here now for the first time before the Atomic Energy Commission and before this Board as to whether the Board has jurisdiction to grant a research and development license which means in effect a finding that the type of reactor to be employed -- in this case the pressurized water type reactor does not have value for commercial use -- as to whether the Board has jurisdiction to grant such an application, that has never been tried or argued or decided before this Board and that stands at the threshold of this case.

CHAIRMAN JENSCH: Isn't that question of jurisdiction entirely aside from the scope of a non-exclusive license?

My question is: Is there any definition in this Act, and you recognize that this Board must guide itself

by this Act? Is there any definition that a non-exclusive license would let, in this supposed case to which I refer, Company B to come over and say, "I want a part of Company A's property"?

MR. REEDER: I agree with your Honor that we are engaging in a premature discussion in arguing that for the reason we have not yet gotten by the first hurdle in this case, which we have to maintain in order to get the right to a non-exclusive license. That hurdle is a finding by the Atomic Energy Commission or by a court on review of the Atomic Energy Commission that this Board does not have jurisdiction to grant an exclusive research and development license for 40 years to build a $340 million nuclear station with three units of the same pressurized water type of reactor which they tell you in their application is a research and development facility.

That is our case.

CHAIRMAN JENSCH: Would it not be helpful in the consideration of this matter to limit ourselves to this first hurdle to which you referred and think only of Section 104(b) and not any carving up of properting or any other proposal that you may have that you think is down the road? Shall we not stay with Section 104(b)?

MR. REEDER: I think, your Honor, that as far as the Board is concerned, in view of the exclusion of nonprofit and in view of the determination of the Board, the initial

determination of the Board that our action to dismiss the application for research and development licenses as to Units 1 and 2 should be denied, that it is probably premature to go into what our rights will be after we obtain this, but as to the right to intervene in this case by Piedmont Cities Power Supply, Inc., which right has been denied in the initial decision, I think it is important to point out that under a commercial license which the Board, we believe, has jurisdiction to issue in this case upon proper application by Duke, we would have the right to many things designed to protect us against an exclusive monopoly of the nuclear power reactor industry on behalf of the privately-owned utilities which we do not have in this motion. That is, it goes to our interest to intervene, which your Honor has granted, as to the 11 Piedmont Electric Cities but denied as to Piedmont Power Supply, Inc.

CHAIRMAN JENSCH: You have used the language that this project should be or could be under Section 103 by a proper application by Duke. So you recognize that that phase of it would be a separate proceeding with a separate application, is that your thought?

MR. REEDER: It could be a separate application or it could of course be an amendment to their application in this case, in which case the municipalities would be entitled to know in writing, not only the 11 municipalities

but all the other municipalities. Not only the State of South Carolina but all the states affected. And we would be --

CHAIRMAN JENSCH: You would have 50 states or 49, would you not?

MR. REEDER: I won't say this.

CHAIRMAN JENSCH: I am trying to inquire of you whether we can establish a common legal focal point. As I understand it, Section 103 would be, if it ever were reached, would be some separate filing by Duke and since that is not here, shall we not push 103 aside and limit our consideration again to Section 104(b) and decide if we can resolve the contentions you raised under that section, would not that contribute to expeditious consideration of this proceeding?

MR. REEDER: I think the common legal focal point in this proceeding is the finding of practical value for commercial use of the pressurized water type of reactor involved in this proceeding. If you find, make that finding of practical value on the evidence in this case, you have to dismiss this application for want of jurisdiction and if you find on the other hand that there is no practical value for commercial use in the type of reactor which they propose to employ, the pressurized water type of reactor, then you can go ahead and grant a research and development

license to Duke for this project which they say is so commercial that they are dependent on it in 1971, 1972 and 1973 to meet that commercial requirement.

CHAIRMAN JENSCH: Where did they say this is commercial? I found no such reference.

MR. REEDER: If you read -- I know you read the Appendix A to our reply to their answers in opposition to our petition for leave to intervene.

CHAIRMAN JENSCH: You drew several inferences of a kind that you describe but I find no statement by Duke to that effect.

MR. REEDER: I am reading to you in answer to your question from Appendix A to the reply of the joint petitioners which was filed on the 25th day of August 1967.

On page 2 of Appendix A, which is Supplement 1 to Duke's application and which is entitled "Duke Power Company, Oconee Nuclear Station Units 1 and 2, Preliminary Safety Analysis Report, Volume 1," on page 2 they say, referring to the pressurized water type of station: "The nuclear steam supply system is a pressurized water reactor type similar to systems operating or under construction" -- stars -- and then continuing the quote in the next paragraph: "Construction is scheduled for completion in time for loading fuel into Unit 1 in December 1970, and for its commercial operation" -- and I have underlined that in the Appendix A -- "for its commercial operation by May 1971, with commercial operation of Unit 2 scheduled by May 1972."

Going over to page 3 of Appendix A, the same document, Supplement 1 to their application, they say under tabular characteristics, Paragraph 1.3: Table 1-2 is a comparative list of important design and operating characteristics of Duke's Oconee Nuclear Station Units 1 and 2, Turkey Point Units 3 and 4 (Florida Power and Light Company), Indian Point Station Unit 2 (Consolidated Edison Company of New York, Inc.), and Brookwood (Rochester Gas and Electric Company) nuclear power stations.

These stations have design and operating parameters close to those of the Duke facility.

Now, we are not here concerned, Mr. Chairman, with the question whether this Board has jurisdiction to issue a license to the Duke Power Company for a particular station Units 1, 2 and 3. We are concerned with the relatively narrow question whether the Atomic Energy Commission has jurisdiction under Section 1 -- under Section 104(b) of the Act to issue a research and development license to Duke to build three pressurized water type reactors which we believe the evidence will show and which we believe the application of Duke already shows and which we believe other evidence of which the Commission will have to take official notice shows are facilities for which there is not only evidence in this case of practical value for commercial use, but which this Commission, in numerous cases where it has held hearings and made findings and issued orders, has found as a matter of law within the Atomic Energy Act, within the meaning of the Atomic Energy Act, that the pressurized water type of reactor does have practical value for commercial use.

That is our case.

CHAIRMAN JENSCH: May I ask one further question? I think your later statement has focused the matter quite substantially, but let me just go further and let me read

to you Section 104(b).

"The Commission is authorized to issue licenses to persons applying therefore for utilization and production facilities involved in the conduct of research and development activities."

If I may pause for a moment, if a period were placed there and that concluded the totality of Section 104(b), would you not agree that the initial determination would have to be that there were utilization and production facilities involved in the conduct of research and development activity?

MR. REDDER: Well, Mr. Chairman, if I were to agree that putting a period there would produce that result, I would be engaging in what would be in effect a fiction, because the next words are the words that bite.

CHAIRMAN JENSCH: If I may further -- it goes on to say -- let me read it again from the beginning of Section 104(b).

"The Commission is authorized to issue licenses to persons applying therefor utilization and production facilities involved in the conduct of research and development activities leading to the demonstration of the practical value of such facilities for industrial or commercial purposes."

Now, that language is to be contrasted with

Section 102 which says if the Commission -- in effect I am not reading now -- but if the Commission determines that there is a type of facility which has been developed to be of practical value -- now there is a distinction in the kind of language between 102 and 104(b) in that 104(b) merely requires that research and development activities lead to the demonstration of practical value whether they attain it or not, whereas Section 102, which is the condition precedent to Section 103, it must be established that there is practical value of a certain type. Do you not agree?

MR. REEDER: No.

CHAIRMAN JENSCH: Where do you not agree?

MR. REEDER: It is our position, sir, and we shall contend throughout this proceeding, that the Section 102, the test of practical value for commercial use, is the dividing line between the type of license which this Commission has jurisdiction under the Act to issue under Section 103 and the type of license which it has jurisdiction to issue under Section 104.

It is our position that if an activity -- if a facility is involved in proving that the type of facility -- and the word "type" is in there -- that the type of facility has practical value for commercial use, that it would then be under Section 104(b), a research and development activity --

a research and development facility.

But, if you were obliged to find on the evidence that the type of facility involved in this application, namely the pressurized water type reactor, is a facility which already has practical value for commercial use -- may I add parenthetically, why would a company of the proven financial capability of Duke want to have a license for a facility of 260,000 kilowatt capacity which didn't have practical value for commercial use?

If it has already practical value for commercial use, then it is our position that this Commission and this Board has no jurisdiction whatever under the Act to issue a research and development license for that type of facility.

CHAIRMAN JENSCH: Why did you carve out that phrase research and development when you are considering 104(b)? Because you say if this has practical value, presumably any practical value, you would say that Section 104(b) does not apply, but the Act says that if the facility is involved in research and development leading to a demonstration of practical value, jurisdiction has been assigned to the Commission under Section 104(b). Do you not agree?

MR. REEDER: Mr. Chairman, I don't agree.

CHAIRMAN JENSCH: Why not?

MR. REEDER: I think you can't carve this section 104 up into little parts and discuss this matter

piecemeal.

CHAIRMAN JENSCH: That is why I wanted you to include research and development. You took it out.

MR. REEDER: You have to include Sections 102, 103 and 104 -- particularly 104(b) -- together as a group in order to solve this jurisdictional question, and we will not solve it here this afternoon. But we have been given the opportunity to come in here and participate in this proceeding for the purpose of aiding the Commission in that jurisdictional determination, and I would like to call your Honor's attention to the fact that there is really no great dispute in terms of ordinary language between the Piedmont Electric cities and the Duke Power Company as to what t[illegible]ute means.

We have stated in our -- we have set out in our reply memorandum a quotation from a press release attributed to the president of Duke Power Company, Mr. McGuire, in which they have substantially agreed with us as to what the meaning of this statute is, and the Board has heard here this morning presentations by numerous individuals and public officials and representatives of the Duke Power Company, every one of which leads to the conclusion that as a matter of practical common sense and the ordinary interpretation of words and the meaning of words, the single plain meaning of Section 104(b) of the statute is that this

Commission has no jurisdiction whatever to issue a research and development license for a type of facility which has been demonstrated by the practical interpretation and the acts of responsible commercial men as well as the findings of the Atomic Energy Commission in issuing licenses for construction permits for Indian Point, for Brookwood, formerly the Robert Ginna Station, of Rochester Gas and Electric and for the Indian Point Station of Consolidated Edison of New York, that this Board and these companies have in effect stated where everyone who walks can read that the pressurized water type of reactor does have practical value for commercial use. That is the kind of a case that we expect to present in the course of this hearing to which your Honor has very graciously admitted us as parties.

CHAIRMAN JENSCH: May it be understood, there was no grace involved. It was a legal determination which we felt you were entitled to. We are not disposing of grace. We are trying to interpret the Act.

(Laughter.)

MR. REEDER: I appreciate that, and I yield now to my colleague, Mr. Tally, who will complete our opening statement.

CHAIRMAN JENSCH: Mr. Tally, will you come forward, please?

MR. TALLY: Yes, sir.

CHAIRMAN JENSCH: So the record at this point will be complete, it is our understanding that Duke didn't agree with your interpretation as to that. They will be given an opportunity to speak later.

Proceed, please.

MR. TALLY: I beg your pardon, I didn't understand your last statement? Duke didn't agree to what?

CHAIRMAN JENSCH: I understood Duke hadn't agreed with your interpretation of Section 104(b). I shall be glad to hear them further --

MR. TALLY: I would be astounded if they would agree. Nevertheless, they may have to. I appreciate deeply the compassion if not grace exhibited by you, Mr. Chairman, and I can appreciate the difference between the untroubled waters of monologue this morning and the troubled waters of dialogue this afternoon and appreciating the complexity of the language used in the Atomic Energy Act, especially as it was amended in 1954, I should be happy if --

CHAIRMAN JENSCH: I wonder if you would speak louder so all would hear in reference to the complexity of the language.

MR. TALLY: I should be happy if I might at your instance discuss further some of the questions which you raised with my colleagues. If I may ask your indulgence to state three brief paragraphs in conclusion of our

presentation or what will be the context of this as we understand it: I am to speak to the last part of that context in that we think the issue that we raise here is technically proper.

We think also, sir, that it has significant national importance. We think the national importance raised by this proceeding is whether municipally-owned electric utilities, the Electric Cities of America, will be protected in the rights we think they have which I hope we may discuss later, in the rights we think they have under this Act to own their fair share of the nuclear commercial electric stations licensed by the AEC. Or whether the privately-owned electric utilities of America can force the Electric Cities to purchase virtually all of their power supply from the investor-owned segment of the industry.

Now this is the same issue which was raised by Dixon-Yates in the 1950's which also involved the private utilities, the Atomic Energy Commission and municipally-owned electric systems.

As this issue is considered and decided by this Board, and by the Atomic Energy Commission and in the course I want to be on public record that I want no one to forget that Duke Power Company's attempt to obtain a mere research and development license to build three pressurized water type reactors for commercial use in its

highly successful profit-making utility enterprise is the greatest grab for exclusive private monopoly power since the President, the Congress and the people rejected Dixon-Yates.

On that issue we are willing, as we proceed as parties, to stand upon what we think is an interpretation of this Act that you gentlemen as a Board and the gentlemen of the Atomic Energy Commission and then the gentleman on the Circuit Court of Appeals and then the gentleman on the United States Supreme Court have never had a chance to exanine.

In the definitional part of this statute, the Atomic Energy Act of 1954, the term research and development is divided into just two categories. It is in 422014 in the U. S. Code and it reads: "The term research and development means: L. Theoretical analysis, exploration or experimentation."

I don't think even the counsel for Duke would claim they come under subparagraph 1 of subparagraph b of that section. or two, the extention of investigative findings and theories of a scientific or technical nature into practical application for experimental and demonstration purposes -- for experimental and demonstration purposes, including the experimental production and testing of models, devices, equipment, materials and processes.

Now everything in Duke's application upon its face shows that they are not limiting themselves to the experimental production of any of these devices and we think therefore that under, as Mr. Reeder has expressed it to you, under the research and development license purported application, they can't bring themselves within the definition.

I suggest that we do not, this afternoon, have to decide that but I suggest that is what we will have to decide at the end of the road. And we do propose in the part we will play as parties in this proceeding to direct such examination and cross-examination and presentation as we make to this Board to that fundamental point.

CHAIRMAN JENSCH: Let me ask, Mr. Tally, a situation that perhaps is in sequence of that which I discussed with Mr. Reeder.

Are you familiar -- let me ask -- were some of these early reactors that played a part in the technology of atomic energy for peaceful use? Principal, I have in mind, do you know about the Shippingport reactor?

MR. TALLY: Yes, sir.

CHAIRMAN JENSCH: As I understand it, that was the first that produced power, that did get into the system of an electric company. But it was kind of -- whatever they had leftover could go into the electric company's property.

Now are you able to say from your understanding whether that would be a research and development facility within the meaning of 104(b) as you understand it?

MR. TALLY: I shouldn't like to be staked out on it. I should guess probably within those days and within reasonable bounds that would have been considered so. I should think perhaps even the Parr Plant might have been considered a proper application and a proper interpretation and therefore a proper construction of the plant for 17 megawatts.

CHAIRMAN JENSCH: So therefore the sale of electricity doesn't destory the research and development aspect, does it?

MR. TALLY: Well, sir, that gets back deeply into the definition of research and development itself.

CHAIRMAN JENSCH: How does it? You can't use research and development to sell some electricity.

MR. TALLY: Well, sir, as I say I am asking that we not try to determine this afternoon what these words mean but direct our attention throughout this proceeding to what they mean. But if the definition of research and development as stated in the statute can mean only theoretical analysis, exploration or experimentation or the extension of investigative findings and theories of a scientific or technical nature into practical application for experimental

and demonstration purposes, that is vastly different than for the sale commercially on a huge scale of electricity. How can you possibly fit this $341 million plant having 2,260 megawatts proposed into the language practical application for experimental and demonstration purposes? When Duke Power said it is for the purpose of putting that power on the line in 1971, 1972, and 1973.

CHAIRMAN JENSCH: Is it your thought that the sale of electricity destroys the research and development character of a plant like Duquesne? I mean Shippingport.

MR. TALLY: The smallest sale might not.

CHAIRMAN JENSCH: When does it automatically swing over the line?

MR. TALLY: That is a matter to be fully considered.

CHAIRMAN JENSCH: What are your views now about it, Mr. Tally?

MR. TALLY: My views now would be that the Commission is in this case for the first itme having to consider where those guidelines are.

CHAIRMAN JENSCH: And what do you -- where do you think it should be? When is the swing from Shippingport so it destroys the R & D aspects?

MR. TALLY: It certainly swings somewhere between a 17-megawatt power plant and a 2,260-megawatt Oconee plant.

CHAIRMAN JENSCH: You base it entirely on the volume of electricity generated, is that correct?

MR. TALLY: No, sir.

CHAIRMAN JENSCH: What do you base it on?

MR. TALLY: First, upon the interpretation of this statute itself.

CHAIRMAN JENSCH: What is that?

MR. TALLY: Well, as Mr. Reeder has indicated, you have to take into account 102, 103, and 104 to which I have added is the definitional section at the beginning of the statute, and even when you have read the entire life history of those sections, the Board and the Commission are still left with the Herculean job of deciding really for the first time on a fundamental challenge such as we are bringing here what practical value means and what R & D mean, and these other com-

ponents that go into the tremendously tight language of this statute, but we think we can demonstrate in the course of the hearings before this Board and then before the Commission and then before the courts, if that should eventuate, that this type of application which Duke has made and the record upon which it will be judged by you gentlemen and the Commission and possibly the courts can't possibly be consistent with the language of the statute as any reasonable interpretation of it would run, but you gentlemen have never had a chance to make that reasonable interpretation.

Up to now there has been really no challenge on the other side so that you had to think what this statute really does mean, nor had you had to bring into play the public protection we are talking about here which the Congress wrote in here and appended to 103 and keyed to practical value and keyed also to research and development.

CHAIRMAN JENSCH: So in making the interpretation we are inviting the views of the participants, so we are asking your view?

MR. TALLY: Yes.

CHAIRMAN JENSCH: When does the quantity of electricity generated swing away and destroy the research and development that is involved in a project? Starting with Shippingport, can you trace it through and tell us where in your judgment, because we are asking for your views to aid us in the interpretation

we will have to make and that the Commission will have to make and the other sequence to which you refer --

MR. TALLY: You certainly won't expect me as a layman to say when, so far as --

CHAIRMAN JENSCH: We are asking your views because we want you to help us interpret this correctly.

MR. TALLY: I think it would be dependent upon many factors. Not just the amount of electricity generated there. It would seem to me it would depend upon whether, for example, by previous determination of the Commission this type of pressurized reactor had been licensed, even if it had been licensed, as has been the case, under R & D. If this Commission has had the chance to see that reactor being constructed and the same type of reactor being proposed, then it would seem to me you are moving very close to the point where you have to find practical value even without considering how much electricity is proposed to be generated.

CHAIRMAN JENSCH: Of course, we are not going to make any collateral attack upon the outstanding orders of the Commission in reference to previously authorized reactors, so we have to take this reactor under this statute and I wondered where, in your judgment, the quantity of electricity to which there have been these new references destroyed the research and development character of a Section 104(b) facility.

MR. TALLY: Well, sir, I again don't want to have you

get the impression at all that I think it depends upon that sole factor of how much electricity. I have tried to do my best by answering that certainly somewhere between a 17-megawatt Parr plant and a 2,260-megawatt Oconee plant.

CHAIRMAN JENSCH: 2,259 would be adequate for research and development?

(Laughter.)

CHAIRMAN JENSCH: Somewhere between?

MR. TALLY: Well, sir, certainly when these businessmen representing their hard-headed shareholders put up millions of dollars and come to you on an official record and say they are going to generate electricity commercially, it seems to me that we are not to engage in a pirouette before the Board or the Commission about what the word "commercial" means. They understand it. They have put their money on it.

CHAIRMAN JENSCH: Well, we have to ask the views of those who are participating. If you at any later time come to a conclusion respecting those matters we would appreciate having your views, Mr. Tally, because we won't know how you feel the Act should be interpreted unless you express yourself specifically to the problem we have at hand.

MR. TALLY: I deeply appreciate that, sir, and that is what we wish to do throughout the course of this. It's not our wish at any time to impede either what are the utility needs of the people of the great States of South Carolina and North

Carolina. Our interest, as we understand it as lawyers, is to protect what is the public utilities part of that interest, and we just feel that this jurisdictional question stands at the threshold of it and it also stands at the final door through which this record will go.

And we do want to be helpful in it and we do want to suggest that it is -- that all of these factors have to be taken into account, beginning with the definitions in here and that this is the first time that the Board and the Commission and the courts have ever really had the opportunity to do it, because you haven't been helped heretofore, because no one challenged heretofore.

CHAIRMAN JENSCH: And your help will be certainly appreciated and if you will tell us, from time to time, as you arrive at conclusions, because we won't know just the direction to which you are pointing your evidence unless we have your views, and there are many factors, all parts of a statute must be considered together, but you have to look at one at a time and so take a look at 104(b) is where I just get plainly stopped, and I haven't gotten beyond 104(b), because that is the application that is before us.

I don't know if you recognize, as I understand you do, that you can have a sale of electricity from a research and development facility and still qualify under a Section 104(b) -- why the research and development is destroyed at

or7 1 based upon an opinion by Mr. Hennessy, their general counsel,
2 that demonstrated practical value involved economics as well
3 as technology, and, as this Board is well aware, there is no
4 874-megawatt electric nuclear generating unit in service anywhere
5 in the world, while, as the staff has pointed out in memoranda
6 to the Commission, while the AEC staff is satisfied as to the
7 technical feasibility and the safety, the economic feasibility,
8 its competitiveness as compared with the coal-fired steam plant
9 has yet to be demonstrated, and there must be, of course, oper-
10 ation of the plant to demonstrate that.
11 This Board, I think, is bound by the Commission's
12 rule-making as late as last December. This is merely an attack on
13 that rule-making. While I am on my feet, sir, one other area of
14 disagreement. That is the suggestion that there is any remedy
15 in the Atomic Energy Act or in the anti-trust laws or even in
16 the Federal Power Act that would permit, as the Chairman put
17 it, Company A to appropriate even for compensation a part of
18 Company B's utility property. We can't read that into either
19 Federal Power Act, Atomic Energy Act, or anti-trust laws.
20 It does, however, violate a fundamental principle of
21 public utility regulation, and that may be why these gentlemen
22 chose this novel forum rather than their conventional forum,
23 where an adequate remedy exists in the Federal Power Act. Duke
24 is admittedly an interstate electric utility. Its wholesale
25 rates, that is, its rates for resale, are subject to the

or6 1 some point, and where is it in the quantity problem? As I
2 understand it -- and dollars. I should say you have mentioned
3 dollars several times.
4 MR. TALLY: Your Honor would appreciate many of
5 these things are resolved to a matter of degree. I might also
6 give a negative indication, though, that will be implicit in
7 our position. That is that mere tinkering and testing with one
8 of these reactors, tightening the nuts and bolts before getting
9 it under way, doesn't constitute research and development either.
10 CHAIRMAN JENSCH: Now, I wonder if we may take up
11 staff counsel's suggestion of considering procedures, but
12 maybe we should ask the applicant, so it would be firmly
13 established on the record, are you in agreement -- is that
14 correct -- with the intervenors' counsel of the interpretation
15 of the Act?
16 MR. HORN: No, sir. We are not. We consider that
17 this is an attempt to make a collateral attack on the
18 Commission's rule-making, which was of general application as
19 to boiling water and pressurized water reactors. Two of them,
20 the latest being in December of last year, while this very ap-
21 plication was on file before the Commission. The Commission
22 again considered the matter on request of the National Coal
23 Association, and decided that the time hadn't yet arrived where
24 large-scale pressurized water reactors could be found to have
25 practical value and again the Commission pointed out there,

jurisdiction of the Federal Power Commission. The Federal Power Act provides those rates must be just and reasonable, and that applies whether the electricity is generated at a hydro plant, at a coal-burning steam plant, or at a nuclear plant. So the remedy there, if the rate is unreasonable, and we have contended publicly that it's not because it's the lowest wholesale rate in the two Carolinas, it's the lowest rate in Duke Power's rate structure, so we have publicly refused a voluntary rate reduction which is their stated goal today.

We are perfectly willing to litigate that question out before the proper forum, which is the Federal Power Commission. But the Federal Power Commission, in my judgment, could not and would not countenance such obvious discrimination as taking one particular customer or class of customers and saying you are my favorite child. You may buy all of your power, or the bulk of your power, from this company;s newest and most modern plant and therefore its least expensive to operate -- it should be -- and leaving the other customers to bear the expense of the economics of the older plants, which will range in age from maybe 25 to 30 years on up to brand-new. Of Duke Power's 20 largest customers, less than half are wholesale customers, municipalities or cooperatives.

If these 11 wholesale towns are entitled to buy a piece of a specific plant, the newest or most economic plant, certainly those industrial concerns, those manufacturing plants

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are equally entitled to. So then you get to the question of -- you carry that to its ultimate degree and here is the householder, he is paying the higher cost of the older plants that are about ready to go out of service. That is why this principle that they are asking for violates a fundamental principle of utility regulation.

Knowing that there is a need, definite need for these Oconee units to meet Duke Power's summer peak of 1971 for the first unit, 1972 for the second, 1973 for the third, and that time is of the essence, I will represent our contention earlier at the pre-hearing conference, that this is an abuse of the administrative process. I don't wish to comment on the two orders until counsel for the staff has had opportunity to do so, but I would at this time like to renew the motion to dismiss these cities as parties for the reason that their pleading, as limited or expanded by their pre-trial conference, has revealed no interest in this proceeding.

They have not addressed themselves to any issue that the Chairman read this morning as the issues which would be involved in this hearing, and the only issue to which they addressed themselves is that relief which this Board in its order very properly says is beyond the jurisdiction of the Commission to grant.

So I will now, on the basis of their opening statement, move to dismiss them as parties. I would like to be heard

following staff counsel on the orders of August 28.

CHAIRMAN JENSCH: Do you not understand they are also asking for the investigations, if the jurisdiction point is resolved in their favor, that is, that they may not -- I don't say they may not -- they don't agree to that -- but assuming they don't get a carving out of the plant or a portion of the capacity, nevertheless the right to get some investigations undertaken is still outstanding, is it not?

MR. HORN: Yes, sir. To answer that, I will have to address myself to a portion of one of the August 28 orders. I can do so now or await Mr. Engelhardt and then do it, as you prefer.

CHAIRMAN JENSCH: You will be given an opportunity. Let us hear from staff counsel and his suggestions on procedure.

MR. ENGELHARDT: I think it may be inappropriate to characterize what I have to say as simply procedural, because it may go to some substance with respect to the standing of these parties, but I think if we understand that is what I had in mind --

CHAIRMAN JENSCH: You are not limited. Will you proceed?

MR. ENGELHARDT: I do express some concern at the turn of the argument. I think the argument presented by the intervenors in this proceeding is repeating to a great extent that which we have already seen in various filings in this

orll1 proceeding. I think that the arguments that are presented by the intervenors are frankly without merit. I think they reflect a misunderstanding of the provisions of the Atomic Energy Act and the implementing regulations. I think our position is clearly stated, and I won't go into any argument on that matter. Our position is clearly stated in the brief which we have filed on the 25th of August in which we state our position with regard to the contentions of the intervenors, and I am concerned that the statements that have been made which the intervenors in this proceeding have not enlightened me to any great extent as to where we really are going in this proceeding.

This proceeding was noticed for hearing with specific issues which were identified by the Chairman of this Board at the opening of the hearing, and they relate essentially to public health and safety matters and to matters related to common defense and security. The Chairman of the Board -- rather, the Board has issued recently, as of yesterday, two orders, one which has granted the petition to intervene of the 11 cities, while denying the Piedmont Cities Power Supply Company's petition, and the Board has ordered, has issued an order denying the motion to dismiss with respect to Units 1 and 2 and has deferred a decision with respect to Unit 3.

This leads me to the point that I am somewhat concerned with, and I think with respect to the order denying the intervention, I would inquire of the Board as to whether this particular

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denial was based as a -- or, should I say, is denied as a matter of law, or was this intended to be as a matter of discretion with the Board?

CHAIRMAN JENSCH: What difference does it make?

MR. ENGELHARDT: I think this is a matter of some interest, since it's a matter of law in this particular hearing. I think I would take exception to the -- to possibly the interpretation which has been given to certain of the cases that are cited as a basis for showing an economic interest, and I think that if this is the case, I think I would like to know from the Chairman whether this was the intent or whether it was the intent of the Board to grant this intervention as a matter of discretion, as has happened in some of the proceedings that we have had before the -- before Atomic Safety and Licensing Boards in the past.

CHAIRMAN JENSCH: Exceptions will also be noted by all parties to these orders. The orders will speak for themselves, and you may proceed.

MR. ENGELHARDT: With regard to the order denying the granting of intervention, I feel that these parties have shown no economic standing with regard to -- or shall I say economic injury as we would relate that to the Atomic Energy Act, and I feel that the citations to law in that order are to essentially the Natural Gas Act, which is essentially a matter of -- I should say provides for specific intervention of a broader nature

than we have within the Atomic Energy Act, and I think this interpretation raises somewhat a novel matter of policy and law with respect to Atomic Energy Commission proceedings, and I would at this point in time request that the Board certify this particular order granting intervention to the 11 Piedmont cities to the Commission for a determination as to the matter of the standing of these parties.

CHAIRMAN JENSCH: When the opportunity was given to the staff to file a brief, the Board expected the staff to deal with this subject in its brief. Nowhere in the brief filed was the question of jurisdiction discussed, although it was specifically requested at the pre-hearing conference, and therefore we were somewhat dismayed to read the scope of the brief filed by the staff.

These matters to which you refer will be noted in the record. Exceptions may be had. And you may proceed. The Board has reached the conclusions reflected by the two orders and is ready to proceed upon that basis. Unless you have something further, additional to what you have presented, we would be ready to receive evidence from the applicant and proceed.

MR. ENGELHARDT: I would like to note for the purpose of -- with respect to the last comment, that in our brief we did indicate a certain line of cases in which we indicated our interpretation of standing to participate in a proceeding, and I think that those cases speak for themselves, and I think that they are identified properly and I think that we would continue to rely on such a line of cases in such an event.

CHAIRMAN JENSCH: You may do so.

MR. ENGELHARDT: Now, with respect to the order denying the motion to dismiss the application, the Board

defers the consideration of the motion with respect to Unit 3. This particular statement by the Board is somewhat difficult for me to interpret and I wonder if it would be -- if the Board would be willing to indicate more clearly what its intention was with respect to deferring that particular motion, that portion of the motion.

CHAIRMAN JENSCH: Will you tell us what your difficulty is and perhaps we can be of some assistance.

MR. ENGELHARDT: I can foresee that if the matter is deferred for some long period into the far, dim, distant future, that there is a possibility that a decision by this Board might be subject to some -- that is an initial decision by this Board might be subject to some serious question simply because we have an open-ended deferral of a portion of a motion. This means that we -- while we proceed with this hearing we don't know whether the motion is granted or is denied and we don't know at the close of the hearing, unless something occurs, whether this particular motion or particular order remains in effect or whether this is a means of providing the Commission with an opportunity to determine to what extent this deferral should continue on into the future. This is my concern. This is what I can visualize as a problem.

CHAIRMAN JENSCH: You really won't know what the Board will recommend respecting the issuance until the

decision, either, so if you can struggle with that one we hope you will be able to struggle with Unit 3.

MR. ENGELHARDT: This means we have no basis for knowing whether or not the matter of what is in that motion is a proper subject for the evidentiary record and we will have to, until such a disposition is made of that order, we would probably have to take objection or object to the testimony on the basis of our -- on the basis of our interpretation that this matter is not the proper subject for this proceeding.

CHAIRMAN JENSCH: We don't want to limit you in any way in the contentions you may assert, but we will proceed with the evidence and you can make the objections and insertions as we proceed, but I think it will contribute to the consideration of this matter if we proceed with the evidence and perhaps some guidance will be given to the parties based upon the evidence that is adduced.

Does the applicant -- have you concluded?

MR. ENGELHARDT: I did want to raise another rather serious question so far as I am concerned, and that is the extent to which these parties now may participate in this proceeding.

We know that the proceeding is basically set forth on the issues which are set forth on the issues which are set forth in the notice of hearing. We have no guidance with

regard to the basis upon which the intervenors may participate. It would be my interpretation that at this stage in the proceeding the intervenors are limited to the issues as they are set forth in this hearing, and again I would say that this is a matter which would -- it would be useful to have clarification.

CHAIRMAN JENSCH: It is my recollection that at the pre-hearing conference the question of the issue of jurisdiction was considered and I think that a particular question was directed to applicant's counsel that the issue of jurisdiction is as present in the proceeding whether it is noticed or not, and he said I agree, and I heard no dissent from that view.

Since the matter was not disputed in the staff brief which was filed on August 25th, we proceeded upon the basis that the staff was likewise in agreement.

But, in any event, I think the law is quite clearly established, as applicant's counsel has indicated. Therefore, with the issue of jurisdiction before us and the economic interest of these parties related to the question of jurisdiction, it is your view as set forth in the order respecting intervention as stated, this economic interest is directly related to the issue of jurisdictions which the parties to this proceeding recognize as fundamental in any regulatory proceeding. Therefore, for the guidance

of the staff, that portion of the order may be of interest.

MR. ENGELHARDT: I think as a footnote, of course, the matter of jurisdiction and the matter of standing with regard to the Commission's brief, our brief devoted itself to the matter of standing, and I think this is where we have a basic disagreement possibly with the Board with regard to the merits of the contentions of these parties that they have no standing, and this is the basis for our request which has been recognized by the Board that the matter be certified to the Commission, because this is a significant and novel matter, we consider, of policy or law for which the Commission should have an opportunity to consider.

CHAIRMAN JENSCH: The position of staff is noted. The Board adheres to the position.

Does applicant desire to speak further to these matters?

MR. HORN: Very briefly. We would like the record to show the applicant didn't join in the staff's motion to certify this order permitting intervention to the full Commission for the reason that the applicant wishes to proceed with the hearing and with the least possible delay.

We would like the record to show the applicant's exception to that portion of the order permitting intervention,

that portion of the order which permits the eleven cities to intervene and finding that they have an interest under the limited inquiry provided by the Atomic Energy Act.

We would, as to the order denying the motion to dismiss as to Oconee Units 1 and 2 and deferring decision as to Oconee Unit 3, we would like the record to show that the applicant excepts to that portion of the order deferring ruling on Oconee 3 for the reason that this suggestion at least possibly, or by inference that this Board could make a finding of practical value as to this particular reactor, and we don't concede that to be the law.

CHAIRMAN JENSCH: Let me try to answer that particular phase. Will you excuse the interruption?

MR. HORN: Surely.

CHAIRMAN JENSCH: We have limited ourselves in our orders solely to the scope, as we interpret it, of Section 104(b). We, as we indicated at the pre-hearing conference, didn't intend to modify, alter or in any way change the rulings of the Commission respecting practical value. Either one of the two rulings made by the Commission. Our decision here was based solely on our interpretation of Section 104(b).

Now, as to the order respecting Oconee Units 1, 2, and 3, it was our conclusion as set forth in the order that the applicant had set forth in its application a

proposal related to utilization and production facilities which were proposed to be involved in the conduct of research and development activities leading to the demonstration for practical value of such facilities for industrial or commercial purposes.

Respecting Oconee No. 3, it was not our opinion, or rather it was our opinion in the positive, that Oconee Unit No. 3 hadn't been shown on this record so far to be a utilization and production facility involved in the conduct of research and development activities leading to the demonstration of the practical value of such facilities for industrial or commercial purposes.

Let it be clearly stated now that this Board will at no time purport to make any finding under Section 102 or find any application in this proceeding to Section 103. Our proceeding is solely upon the basis of the evidence so far in this record. We can't classify Oconee No. 3 to be within the scope of Section 104(b), which I just read. If the evidence is adduced that modifies that position, the Board will make a ruling in reference to that matter solely under Section 104(b).

MR. HORN: Well, sir, our practical difficulty of course was that you can obtain a license for a power reactor now only under 104(b), and Oconee No. 3 being identical to 1 and 2, or substantially identical, and

construction having been planned to proceed at least in part concurrently, it seemed that these three all have to stand on their own feet. In other words, we were unable to see the Board's reasoning in making a distinction between any one of the three units in that respect, the economics of which have yet to be demonstrated as to all three equally, I think.

CHAIRMAN JENSCH: We tried to indicate our view of the difference in the sentence in which we said we don't expect that Duke will repeat the same experiments in Oconee Unit 3 as they have undertaken in reference to Oconee Units 1 and 2.

Have you concluded?

MR. HORN: Yes, sir.

CHAIRMAN JENSCH: Do you have anything further, intervenors' counsel?

MR. REEDER: Merely out of an abundance of caution, I would like to state for the record our exceptions to the Board's rulings in the two orders issued yesterday and received by us this morning insofar as the first order denies the motion to dismiss with respect to the application for license for the pressurized water type reactor to be used in Oconee Units 1 and 2.

We also wish to except out of an abundance of caution to the Board's order which I have called the second

CHAIRMAN JENSCH: Please come to order.

Will the applicant call the first witness, please?

MR. GRIGG: Mr. Chairman, at the pre-hearing conference reference was made to a Joint Exhibit A of the staff and applicant which consists of the application of the application of various supporting documents. I think it was stipulated that that would be accepted into evidence and incorporated in the record as if read. We would submit that at this time, if the Board please.

CHAIRMAN JENSCH: My recollection isn't quite the same. I think there was the description of the document and I think that is about as far as we went without receiving any evidence or making stipulations in regard thereto.

MR. ENGELHARDT: I think at this time the staff would like to offer as part of the evidentiary material of this record the documents which are listed in the index which I am arranging to have distributed to the parties and to the members of the Board. This index identifies 14 documents or 14 items which consists essentially and I won't read them off. I will characterize them as the application of the Duke Power Company as amended for Oconee Units 1, 2, and 3 and certain correspondence from the Regulatory Staff to the Duke Power Company with respect to requests for additional technical information.

The applicants, staff of course and the Board members have all been provided with copies of all of the documents that are listed on these 14 items. The intervenors have been provided with an intervenors' copy containing all of these 14 items and I would now like to move that the index to these documents be incorporated into the record of this transcript as if read and that this material which is identified in this index be made a part -- that this material which is identified as staff and applicant Joint Exhibit A be made a part of the evidentiary record.

CHAIRMAN JENSCH: First, the document to which staff counsel has just referred may be marked for identification as Joint Applicant-Staff Exhibit A. Having thus been identified and having been previously offered, is there an objection by the Applicant?

MR. GRIGG: On the contrary, we join in the motion.

CHAIRMAN JENSCH: Intervenors?

MR. REEDER: We don't wish to enter into any stipulation about the documents because we have not yet had a chance to examine them. We will, however, not hold up their introduction by making any objection to them on the ground that we have only just received them today, but we will reserve the right to move to strike anything we think is irrelevant, incompetent or immaterial.

CHAIRMAN JENSCH: The reservation may be noted.

order which denies the petition for leave to intervene of Piedmont Cities Power Supply, Inc. And I make those exceptions only to be sure that we are in the ballpark when it comes time to filing our appeal to the Commission.

CHAIRMAN JENSCH: As I intended to indicate, exceptions are allowed to all parties respecting these orders and there would be no limitations intended on any of these parties excepting --

MR. ENGELHARDT: I would like to note for the record that, as I have already, that I have taken the exceptions to the order granting intervention. I would likewise take exception to the order granting or deferring the decision respecting the matter of Oconee Nuclear Station No. 3.

CHAIRMAN JENSCH: Again may I say for emphasis that exceptions are allowed to all parties and that includes the regulatory staff of the Commission, the applicant and the intervenors and anybody else who wants to take some exceptions.

Are we ready to proceed to the introduction of evidence?

MR. GRIGG: Applicant is ready.

CHAIRMAN JENSCH: Before we do that, let's take a ten minute recess. We will reconvene in this room at 3:[illegible].

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(Recess.)

State of South Carolina, any objection?

MR. LIGHTSEY: No, sir.

CHAIRMAN JENSCH: The staff exhibit -- rather Joint Applicant-Staff Exhibit may be designated Staff Exhibit A and is received in evidence subject to the reservation noted of the motion to strike.

(Whereupon, the document referred to was marked Staff Exhibit A for identification and was received in evidence.)

CHAIRMAN JENSCH: Will you proceed?

MR. GRIGG: We have, as I indicated this morning, three broad classifications --

CHAIRMAN JENSCH: Excuse me just one moment.

The request of staff counsel is also granted. The index to which he referred and which has been distributed to all parties may be incorporated within the transcript as if read. So the transcript will reflect the detail of Staff Exhibit A.

Excuse me for interrupting.

Will you proceed?

MR. GRIGG: We have three broad categories of witnesses. We have three who will present direct testimony orally. We have a panel of eight experts and then we have a group of 19 technical back-up witnesses. There are some

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27 or 28 in all.

If the Board please, we can have them all sworn at one time or have them sworn as they appear at the Board's pleasure.

CHAIRMAN JENSCH: While informality prevails, sometimes for the sake of keeping the record straight until you reach the panel, I wondered if it might be well to take each witness and swear them as they are presented for presentation of evidence.

Would that be agreeable?

MR. GRIGG: Perfectly agreeable.

We would call as our first witness Mr. William S. Lee.

CHAIRMAN JENSCH: Mr. Lee, come forward, please, and be sworn.

XXXXX Whereupon,

WILLIAM S. LEE

was called as a witness and, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

CHAIRMAN JENSCH: Will you proceed?

BY MR. GRIGG:

Q Please state your name, address and position at Duke Power Company.

A My name is William S. Lee and my address is 1632

Beverly Drive, Charlotte, North Carolina. I am employed by Duke Power Company as Vice President, Engineering.

Q Please describe your educational background and experience.

A I was graduated from Princeton University in 1951 with a Bachelor of Science Degree in Engineering.

I served as an officer in the Navy Civil Engineering Corps from 1951 through 1954, during which time I participated in the design and construction of military facilities.

In January, 1955 I joined the Engineering Department of Duke Power Company as Junior Designer, and since that time have been continuously engaged in the engineering design of Duke Power Company's electric generating stations. I received several promotions accompanied by increasing levels of engineering responsibility, and was appointed Engineering Manager in May, 1962, and Vice President, Engineering, in October, 1965. In each of these two capacities, I served as head of the Engineering Department in full responsible charge of the design of the company's generating plants, as well as other responsibilities. My experience includes participation in or full responsibility for the engineering design of 2,654,000 KW of steam and hydraulic capacity now in service; 1,664,000 KW generating capacity presently under construction; and 3,232,000 KW in various stages of design.

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In 1955, I received training in nuclear engineering in a course sponsored by Duke Power Company, and was temporarily assigned in 1957 to Carolinas-Virginia Nuclear Power Associates to participate in selection of reactor type, site location, cost estimating and conceptual design of the Parr Nuclear Station in South Carolina. Since 1962, I have directed Duke Power Company's continuing study and evaluation of nuclear power.

I am a member of the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Nuclear Society, the United States Committee on Large Dams, the National Society of Professional Engineers, and am a Registered Professional Engineer in the States of South Carolina and North Carolina.

Q What are your present duties as Vice President, Engineering, of Duke Power Company and, specifically, how do they relate to the Oconee Nuclear Station?

A As Vice President, Engineering, my duties include direction of the company's Engineering Department and participation as an officer in the management of those company affairs relating to engineering. It is the function of the Engineering Department under my direction to conceive and perform engineering design of the company's electric generating plants of all types, including related facilities such as dams, highways, railroads, hydraulic

works, office buildings, switching stations, etc. Engineering design of the Keowee-Toxaway Project and the Oconee Nuclear Station is being performed by this Department.

Q Will you describe in general terms the design of the Oconee Plant and its characteristics?

A The Oconee Nuclear Station will consist of three pressurized water reactors, which are planned for commercial operation in 1971, 1972 and 1973, respectively. The reactors are similar to others now in operation or under construction, and will be supplied by the Babcock and Wilcox Company.

It is expected that each reactor will operate initially at core power levels up to 2,452 thermal megawatts, and all physics and core thermal hydraulics information submitted in support of our application is based on a core design for nominal operation at that level. It is expected, however, that each unit will be capable of ultimate nominal operation at a core power of 2,568 thermal megawatts. The facility systems, engineered safeguards and containment are designed consistent with safe operation at this higher power level.

The reactors will be fueled with slightly enriched uranium dioxide pellets contained in zircaloy tubes. Control of reactivity will be provided by a combination of dissolved neutron absorber and movable control rods. The neutron absorber, boric acid, is dissolved in the reactor coolant for the purpose of controlling the long-term reactivity of

the core and cold shutdown. Silver-indium-cadmium control rods clad in stainless steel are employed to control short-term changes in reactivity and to provide fast shutdown capability.

Incore instrumentation, consisting of self-powered neutron detectors, will be located at pre-selected locations within the core. This instrumentation will allow confirmation of reactor design parameters by monitoring core performance. The fuel core will be supported within a heavy-walled steel reactor vessel, through which water will be pumped to remove heat generated in the core. This thermal energy will be transferred to two once-through steam generators for each unit. The steam produced will be used to drive a conventional turbine-generator and will generate initially about 839 megawatts of electricity. Ultimately, it is expected that each unit will have a net electrical capability of about 874 megawatts.

There are numerous systems, components and features incorporated into the station to protect the public. In power reactors such as those planned for the Oconee Units, the fuel type and arrangement are such that a nuclear explosion is not possible. The first line of protection against the release of fission products from the reactors is the fuel itself, which has a high capability for retaining fission products within its own structure. In turn, the fuel

pellets are encased in metal tubes which are designed to withstand greater temperatures and pressures than those to which they will be subjected and to prevent the escape of fission products. However, even if some of the fuel rods should fail and permit escape of fission products, they would be contained by the reactor coolant system which consists of closed loops also acting as a barrier.

As still a further containment, the reactor building encloses and contains the entire reactor coolant system to prevent the release of radioactive fluids and vapors to the environments in the remote event of an accident. In the Oconee Station each of the three reactor coolant systems will be housed in its own prestressed, post-tensioned concrete containment building in the shape of a cylinder. The inside diameter of each building is 116 feet and the inside height will be 206 feet. Each containment building will rest on an integral concrete slab approximately 8-1/2 feet thick. The vertical walls will be approximately 3-3/4 feet thick and the dome approximately 2-1/4 feet thick. Each building will be lined with 1/4 inch welded steel plate to provide vapor tightness. Each reactor building containment is designed to limit radioactivity release in event of an accident to values well below the guidelines published by the Atomic Energy Commission in the Federal Register.

Q Will you please describe in general terms the site of

the Oconee Station and its characteristics?

A The Oconee Nuclear Station site is on the shore of Lake Keowee now under construction in Oconee County in the northwestern part of South Carolina. Oconee Station will be a part of the Keowee-Toxaway Project which includes two hydroelectric plants now under construction and future thermal and pumped-storage electric generating developments.

The station will have a one-mile exclusion radius and will be in an area remote from population centers. All property within the one-mile exclusion radius is under Duke control, either owned, under option, or covered by an easement granting to Duke the control of access and use when necessary. The site is characterized by sound, hard rock foundations for structures; freedom from flooding; an abundant supply of cooling water from Lake Keowee; an on-site hydroelectric station capable of supplying emergency power; and favorable conditions of hydrology, geology, seismology and meteorology. The nearby Keowee hydro plant tailrace offers the unusual capability of providing emergency water flow by gravity through the Oconee condensers. This reliable heat sink is available for rejection of decay heat conveyed by natural circulation in the reactor coolant system and steam driven pumps in the secondary system.

Q Will you describe the basic differences between nuclear power plants and conventional fossil-fired plants?

A Nuclear power plants are quite similar to the fossil-fired steam plants Duke Power Company is now operating. A fundamental difference is in the fuel source employed to obtain steam to drive the turbines. In a nuclear plant the fuel source is uranium dioxide pellets clad in metal tubes and, in turn, contained within the nuclear reactor. In Duke's conventional plants, coal is used as fuel. Both types of plants have steam generators to produce the steam to drive the turbines which, in turn, drive the electric generators.

Q Will you please describe the experience of Duke Power Company in the design and construction of fossil-fired steam plants and hydroelectric plants?

A Duke Power has been designing and constructing fossil-fired thermal plants and hydroelectric plants for 63 years. In operation are 36 steam units with a capacity of 4,041,010 kw and 30 hydroelectric plants with a capacity of 883,590 kw. Duke did planning and feasibility studies, detail engineering design, construction, testing and start-up for all these steam plants and the major hydro plants. Our steam plants are recognized in the utility industry for their low capital cost and high thermal efficiency. In 1966, one of the Duke plants had the lowest station heat rate of any in the country, making it the nation's most efficient generating station.

Under construction are two coal-fired steam

units with a capacity of 1,364,000 kw, five gas turbine peaking units with a capacity of 160,000 kw and the Keowee hydroelectric plant with a capacity of 140,000 kw. In addition, the Jocassee hydroelectric and pumped-storage plant is in design and preliminary construction phases and will have a capacity of 610,000 kw.

Q What experience have Duke Power's officers and employees had with nuclear technology?

A Duke Power Company's experience with nuclear technology began in 1953 when Mr. E. C. Fiss, who will testify later in this hearing, was assigned to Knolls Atomic Power Laboratory as an industrial consultant. Since that time many of its officers, engineers and employees have become experienced in nuclear technology by participating in familiarization courses which were conducted in 1955 and again in 1966 by Duke Power Company specificially for its own employees.

Duke also has been an active participant in the Carolinas-Virginia Nuclear Power Associates project which resulted in the design, construction and operation of the Carolinas-Virginia Tube Reactor. Carolinas-Virginia Nuclear Power Associates was organized in 1956. Duke Power has actively participated in the management, operational and technical levels of CVNPA, as will be more fully described by Mr. Fiss.

Q You have stated that the reactors for the Oconee Station will be supplied by the Babcock and Wilcox Company. Will you describe the design and construction responsibilities, respectively, of Duke Power Company and the Babcock and Wilcox Company?

A Duke Power Company will be responsible for the design, purchasing, construction, testing and operation of the Oconee Station, a practice successfully followed for all of the company's major generating facilities now in service or planned. Duke's Engineering Department has the responsibility for specification of materials and equipment, design of structures and systems and preparation of drawings. Procurement is the responsibility of Duke's Purchasing Department. Duke's Construction Department has the responsibility for all site construction activities.

Duke has contracted with the Babcock and Wilcox Company to design, manufacture and deliver to the site three complete nuclear steam supply systems, fuel, and associated engineered safeguards systems. In addition, Babcock and Wilcox will supply competent technical and professional supervision of erection, of initial fuel loading, of testing and initial start-up of the complete nuclear steam supply system with coordination, scheduling and administrative direction by Duke.

Babcock and Wilcox has been engaged in the

manufacture of steam generating equipment for 100 years. They supplied the fuel and nuclear steam supply system for Unit No. 1 of Indian Point Station and for the Nuclear Ship Savannah. In addition, they have had extensive experience in research and test reactors and have supplied large amounts of fuel and equipment to the nuclear navy.

Q Has Duke Power employed independent consultants to render advice and assistance during the planning phases? If so, please identify them and describe their assignments.

Q Independent consultants have been engaged to assist in the planning and design phases of Oconee. The Bechtel Corporation has been retained to render general consulting services throughout design and construction, and to perform the design of the prestressed concrete reactor buildings. Bechtel has had extensive experience in nuclear technology, and has successfully provided engineering and construction services for many of the world's nuclear power stations.

Additional consultants retained include Professor George F. Sowers of Georgia Tech and Law Engineering Testing Company as consultants on foundations and dam design; William V. Conn, U. S. Corps of Engineers District Geologist of Atlanta, Georgia, as geologist; Dames and Moore as seismology and meteorology consultant; and C. C. Cullum of Chas. T. Main, Inc., as dame design consultant. Duke retains full responsibility for the complete safety and

adequacy of the station.

Q Mr. Lee, under present regulations, and Applicant for a construction permit and operating license is required to provide protection against radioactive hazards to the public. Will you summarize what measures will be employed to fulfill this requirement and what engineered safeguards are provided in the design of the plant to assure its safety to the public?

A The Oconee Nuclear Station is being designed to rigid codes and safety standards to assure reliable safe operation without adverse effect on the environment. It is vitally important to the public and To Duke Power Company that this station operate safely to supply reliable electrical power to the Piedmont Carolinas. Thus we will make every effort possible to assure that the design, the manufacturing of equipment, the construction and the operation of the station meet the highest safety standards.

However, in the unlikely event that an accident should occur, the Oconee Nuclear Station is designed to withstand without hazard to the public any credible failure up to and including the complete severance of the largest reactor coolant pipe in the nuclear system. In our design, protection is provided to the public in case of such an eventuality, as well as of less severe accidents, by the following engineered safeguards:

1. Systems which inject borated water directly

into the reactor vessel, thereby cooling the core and limiting any damage to the reactor fuel. These systems include high pressure injection, low pressure injection and core flooding tanks.

2. Two separate and redundant reactor building emergency cooling systems designed to cool gases and condense steam that might be introduced into the building if an accident should occur. These systems will limit the building pressure to less than its design pressure and soon return the pressure to near normal.

3. The reactor building containment which is designed to safely contain the pressure from complete rupture of the largest pipe.

4. A penetration room ventilation system which will filter any leakage from the reactor building penetrations. Each of these safeguard systems includes redundant components and conservative design margins to assure their functioning as intended. Completely separate and independent safeguards systems are included with each of Oconee's three reactor units. This series of engineered safety systems will effectively protect the public from any credible accident in the Oconee Nuclear Station.

Q The application in this case covers three nuclear generating units. Will you describe to what extent, if any, they will be integrated or coordinated?

A The design, construction and operation of the three Oconee units will be fully coordinated to achieve maximum safety and reliability. These units are physically independent to the extent that the operation of one unit will not adversely affect the remaining units under either normal or emergency conditions. In some cases, facilities are shared among units but always in such a way as to maintain the necessary independence. Examples of shared facilities are spent fuel storage, waste disposal facilities, service water supply, and compressed air systems. In other cases, such as emergency power, each unit serves to mutually reinforce the other units in the plant when necessary.

Q In its letter of July 11, 1967, to the Atomic Energy Commission, the Advisory Committee on Reactor Safeguards recommended several matters for additional study, and concluded that these matters could be resolved by Duke and the Regulatory Staff during construction. Have any of the matters so cited already been resolved with the Regulatory Staff?

A Yes. We originally proposed comprehensive quality control and inspection procedures to insure the integrity of the welds in the steel liner plate in each reactor building, these procedures being more extensive than the requirements of the applicable codes. The ACRS letter suggested that consideration be given to improved inspection of welds in the

steel liner. We and our consultants have thoroughly reviewed this and have agreed with the Regulatory Staff to double the amount of non-destructive testing over that previously proposed. This means that 20 percent of the welds will be non-destructively tested, instead of 10 percent, and 2 percent of the total will be by radiography. This is in addition to the several other procedures included in the inspection and test program which remain unchanged.

Q Have you communicated to the appropriate authorities of the State of South Carolina and Oconee County your intention to construct and operate the Oconee Plant?

A Yes. We have served copies of all material filed with the Atomic Energy Commission on Mr. Reese A. Hubbard, County Supervisor of Oconee County. In addition, we have communicated our intention to the Governor of the State of South Carolina, to its Development Board, to its Public Service Commission, to its State Health Department, and to numerous other state and local officials. Various agencies of the Federal Government have also been kept advised of our plans. We have also undertaken, through our Public Relations Department, to keep the public informed as to our plans. This has been done through well-publicized announcement meetings, ground breaking ceremonies, periodic press releases and talks to civic clubs and other interested groups.

Q Mr. Lee, bearing in mind that the ultimate

responsibility for the safety of the Oconee Nuclear Station rests with Duke Power Company, have you satisfied yourself, as an officer of the company and as its principal engineer, that the Oconee Nuclear Station can be constructed without undue risk to the health and safety of the public, and that is construction would not be inimical to the common defense and security of the United States?

A Yes, I have.

Q At the pre-hearing conference the Chairman of this Atomic and Safety Licensing Board requested you make a statement at the hearing identifying significant safety matters in connection with the application. Is there anything in that regard that you would care to add to the testimony which you have just given?

A Not at this time, sir. I believe my testimony gives the highlights of those significant safety matters. I think the partial summary to be introduced shortly will amplify on those same highlights.

MR. GRIGG: Mr. Chairman, this concludes Mr. Lee's direct testimony. He is available at this point for questions from the Board and for cross-examination.

I would also point out that he is a member of our panel and will be available at that time for questions and it may be that the Board and parties would care to defer their questioning until that point.

CHAIRMAN JENSCH: Very well. Let us inquire.

Does the staff desire to interrogate this witness at this time?

MR. ENGELHARDT: Staff has no cross-examination questions of this witness.

CHAIRMAN JENSCH: State of South Carolina?

MR. LIGHTSEY: No.

CHAIRMAN JENSCH: Intervenors?

MR. REEDER: Mr. Chairman, we have a few preliminary questions for Mr. Lee, but we would like to defer decision as to whether we have further cross-examination until after we have had a chance to read his testimony. We may not have to question him on the matter of jurisdiction at all, but I would like to reserve that right in order not to be precluded.

CHAIRMAN JENSCH: You desire to interrogate now?

MR. REEDER: I have a few preliminary questions which I would like to ask Mr. Lee bearing on the question of jurisdiction.

MR. GRIGG: I am sorry, I didn't hear that.

MR. REEDER: A few preliminary questions which I would like to ask Mr. Lee bearing on the question of jurisdiction and relating only to developing information and not to anything that might be called serious cross-examination.

CHAIRMAN JENSCH: Proceed.

CROSS-EXAMINATION

BY MR. REEDER:

Q Mr. Lee, directing your attention to the application of Duke Power Company and Dockets 50,259 and 50,270, particularly the part entitled Duke Power Company Oconee Nuclear Station Units 1 and 2 Preliminary Safety Analysis Report Volume 1, which was incorporated in the

reply of the joint petitioners to the answers of Duke and the AEC Regulatory Staff opposing the joint petition for leave to intervene and referring to page -- referring to paragraph 1.1 of that supplement to the application --

A Yes, sir.

Q Do you have that before you, sir?

A Yes, I do.

Q Running down the page there to the third full paragraph, first sentence, you find the statement "The nuclear steam supply system is a pressurized water reactor type similar to systems operating or under construction." Is that a correct reading of the supplement to the application?

A Yes, sir, that is a correct reading. It is similar in concept, but not in size.

Q I direct your attention to page 3 of Appendix A to the reply of the joint petitioner to which I referred, which is paragraph 1.3 of the Supplement 1 to the application headed "Tabular Characteristics," and I direct your attention to the first sentence in that statement which reads as follows: "Table 1-2 is a comparative list of important design and operating characteristics of Duke's Oconee Nuclear Station Units 1 and 2, Turkey Point Units 3 and 4 (Florida Power and Light Company), Indian Point Station Unit 2 (Consolidated Edison Company of New York, Inc.),

and Brookwood (Rochester Gas and Electric Company) Nuclear Power Stations. These stations have design and operating parameters close to those of the Duke facility." Is that a correct reading, Mr. Lee?

A That is a correct reading, yes, sir.

Q Referring to the first of those pressurized water type stations, Turkey Point Units 3 and 4, Florida Power and Light Company's stations, is that the same station for which licenses were applied in AEC Docket 52,50 and 52,51?

A I don't happen to know the docket numbers, Mr. Reeder.

Q Well, Mr. Lee, I mentioned that only for identification purposes. Those numbers were given to me yesterday by Mr. Stanley T. Robertson of the AEC staff, and I believe them to be correct. I merely mentioned them to help identify the station. Do you know whether any license has been granted for Turkey Point Units 3 and 4 as of today?

A It is my understanding, Mr. Reeder, that Turkey Point Units 3 and 4 have been issued a provisional construction permit.

Q Do you know approximately when that was done?

A It was done in the late spring of this year, after which there was some litigation of one sort or another, and I am not sure exactly when it became final, and they were authorized to begin construction.

Q Thank you, sir. Do you know the approximate

capacity and megawatts electrical of Florida Power and Light's Turkey Point Unit 3?

A If you will excuse me one moment, I may have it here.

CHAIRMAN JENSCH: While there is a pause, I wonder if I could direct this question to applicant's counsel. Would it be possible for you to confer with Mr. Reeder if he has questions of that and a similar kind repsecting the other reactors to arrive at a stipulation based upon the official records? I don't think this witness' knowledge necessarily, without records available to him, would permit him to be precise on some of these items, and I wondered if some of these statistical matters could be considered among counsel, including regulatory staff counsel who might be able to provide the precise capacities and dates and so forth.

MR. REEDER: I am not trying to test Mr. Lee's memory. I merely want to bring out a few facts for preliminary information about these stations, and I have here before me the document entitled "Major Activities in the Atomic Energy Programs, January-December 1966," a publication of the United States Atomic Energy Commission dated January 1967. I would be glad to show this to Mr. Lee for purposes of refreshing his memory.

CHAIRMAN JENSCH: First show it, if you will, to

applicant's counsel and let him satisfy himself as to the authenticity of the document. He may stipulate on the statistics to which you refer and it might expedite the presentation of evidence.

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MR. GRIGG: I think we could stipulate that this document was shown to us and that it contained certain information. We would not want to stipulate as to the relevance of this material.

CHAIRMAN JENSCH: All I ask is the accuracy of the statement for the moment.

MR. GRIGG: I would not want to stipulate to that either, at this point, because I frankly don't know the accuracy of those statements, and I don't believe Mr. Lee does.

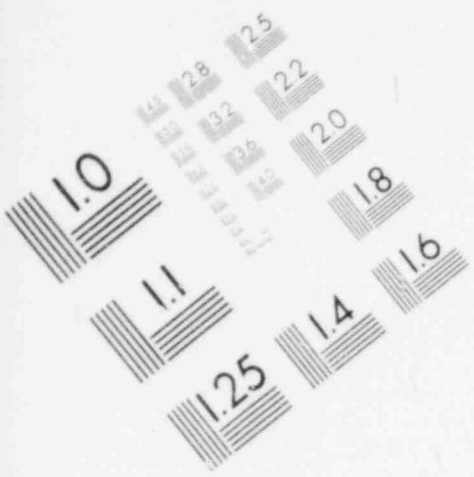
MR. LEE: I am prepared to answer Mr. Reeder's question provided we understand what he means by "about." The capacity of the Turkey --

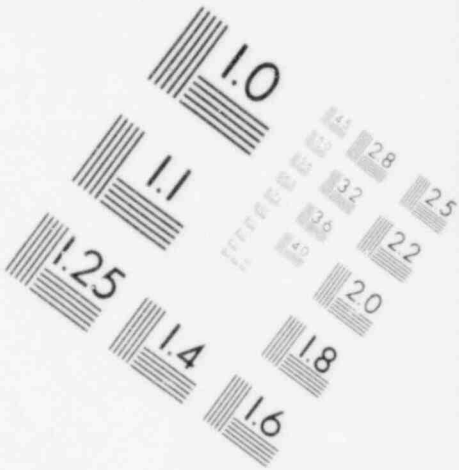
MR. REEDER: That is all I want.

MR. LEE: The capacity of the Turkey Point in its initial operation is about 700 megawatts electric each.

MR. REEDER: Thank you, Mr. Lee. Mr. Lee, directing your attention to the Consolidated Edison Company of New York's Indian Point Station Unit 2, which is referred to in your supplement 1 to the application on paragraph 1.3 under the heading "Tabular Characteristics," I will ask you whether that station also is a station for which a construction permit was issued by the Atomic Energy Commission before your application was filed in Dockets 50-269 and 50-270.

MR. LEE: I can't certify to the dockets. I cannot certify to the date of the issuance of the construction permit.





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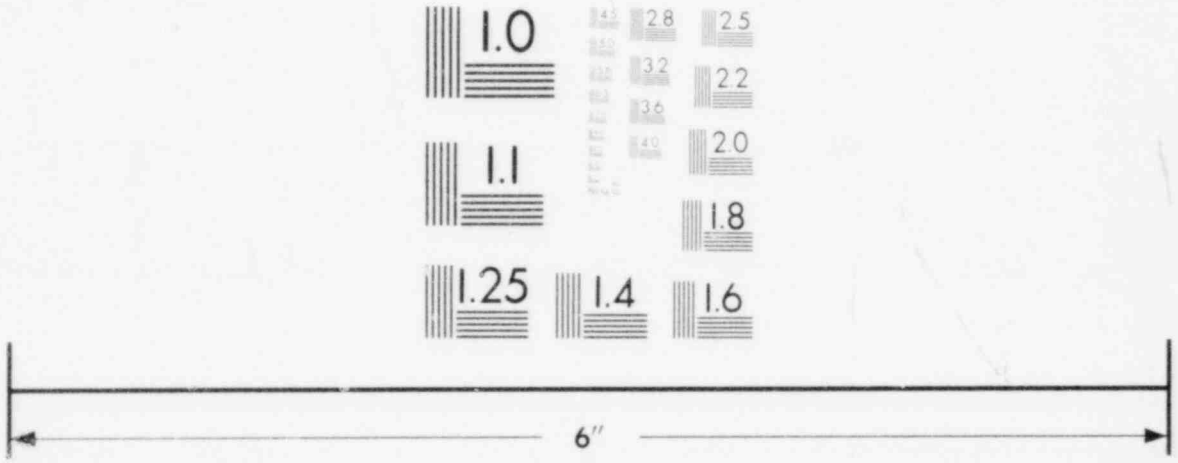

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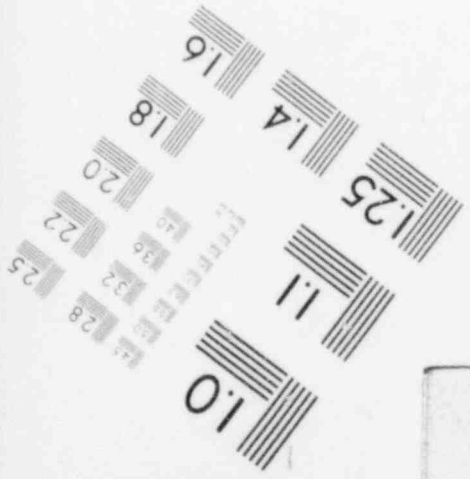

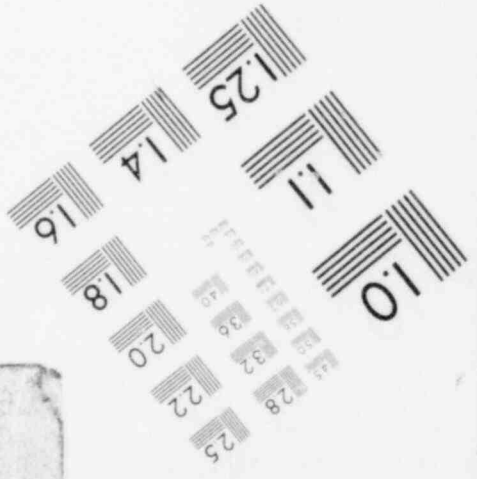

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But I do know it was in the fall, around the fall of 1966 or late 1966.

MR. REEDER: It was before your application was filed?

MR. LEE: I can't certify as to whether it was before December 1 or not, Mr. Reeder.

MR. REEDER: Mr. --

MR. LEE: I don't have that knowledge, I am sorry.

MR. REEDER: Mr. Lee, I don't profess any knowledge of that kind, either, but this document, "Major Activities in the Atomic Engineering Programs," does show that the Indian Point Station of ConEd, Unit 2 at Indian Point, New York, did receive a construction permit on 10-14-166, which would be October 14, 1966, is that not correct?

MR. LEE: Yes, sir.

MR. REEDER: And your application was dated December 1?

MR. LEE: Correct.

MR. REEDER: And is it correct to say that the capacity in net megawatts electrical of ConEd's Indian Point Station Unit 2 was approximately 873 megawatts electrical?

MR. LEE: About 875 to 900 megawatts electrical, depending on whether you talk about initial power or net or gross or what not.

MR. REEDER: Thank you, Mr. Lee. Now, directing your attention to the Brookwood Station of the Rochester Gas

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and Electric Company, another pressurized water type nuclear station referred to in supplement 1 of the application of Duke Power Company in this proceeding, am I correct in understanding that that is the facility which is now known as the Robert Emmett Ginna Nuclear Power Plant of the Rochester Gas and Electric Company?

MR. LEE: Yes, sir. It's known as the Ginna plant.

MR. REEDER: Ginna plant. Thank you.

Is it not true that that is a nuclear station of the pressurized water type of reactor of approximately 420 megawatts electrical?

MR. LEE: Yes, sir, that is approximately so.

MR. GRIGG: Mr. Chairman, we object to this line of questioning for the reason that it's outside of the scope of Mr. Lee's direct testimony. It's irrelevant to these proceedings, and it's outside of the issues prescribed by this hearing Board to be before the Board at this time.

CHAIRMAN JENSCH: Perhaps we should inquire who will sponsor the documents presented by the applicant. That is, the application and the amendments. What officer of the company will take the responsibility for the engineering statement therein?

MR. GRIGG: Mr. Lee, who is now on the stand.

CHAIRMAN JENSCH: I understood the interpretation was directed to a portion of the application that dealt with these

particular reactor stations to which the inquiry has been directed. And if he is supporting the application and its engineering aspects, I would presume he would include the statements to which he made reference in the application, would he not?

MR. GRIGG: I don't understand the relevance of his questions. Would it be proper to ask if he could state exactly what it is he is trying to elicit? Perhaps we could help him.

CHAIRMAN JENSCH: Perhaps he is trying to find out how you happen to rely upon the statements in the application and if you will tell him how you happen to rely upon those that might assist him in his examination.

MR. GRIGG: The Chairman at one time indicated that perhaps we could stipulate some testimony. Now, I don't know how long Mr. Reeder intends to pursue this line, but we would be happy in the interest of time if we could have a recess. Perhaps Mr. Lee and Mr. Reeder could get together and stipulate something that would greatly facilitiate the conduct of the proceeding.

CHAIRMAN JENSCH: That sounds like an excellent suggestion. It happens to come at a time convenient for our usual recess, but I don't want to hurry you gentlemen away from this room. We may find ourselves not able to participate with you in your endeavors. Is there any matter we might take up before the endeavor is undertaken to reach a stipulation on these several substantial matters?

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MR. REEDER: Mr. Chairman, I was just trying to ask about these three stations of these three nuclear pressurized water reactor stations which I referred to in the application, and supplement No. 1 thereof, for which Mr. Lee takes responsibility, and if I can have two or three more questions along this line I will be through with this preliminary questioning.

MR. GRIGG: I withdraw my objection, then.

CHAIRMAN JENSCH: Proceed.

BY MR. REEDER:

Q Mr. Lee, referring to the Robert Emmett Ginna Nuclear Power Plant Unit 1 of Rochester Gas and Electric Company, is that the station which was -- is that the station for which a construction permit was issued on or about April 25, 1966?

A Yes, sir.

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Q And I note you state a little further down the page in Paragraph 1.3 that the design of each of these stations -- that is Zcmee Nuclear Stations 1 and 2 -- is based upon information developed from operations of commercial and prototype pressurized water reactors over a number of years, unquote. Mr. Lee, are there any other stations that you referred to in that sentence besides the Turkey Point, Indian Point and Brookwood or Ginna Stations?

A Yes, sir. There are others similar in concept, not necessarily in size and not necessarily having operated.

Q Would you list those for the record, please, Mr. Lee? Those that you recall?

A I don't have a comprehensive list, but some of them preceding our application were, for example, Robinson Unit 2 of Carolina Power and Light.

Q Would you give the number of megawatts?

A About 700 megawatts electric Then there have been several that followed our application.

Q And would you list these, please, sir?

A Diablo CAnyon Units 1 and 2, I think.

Q How do you spell that?

A Like Spanish for devil. Diablo.

(Laughter.)

A (Continuing) Diablo Canyon. Those are about

1000 megawatts electric, for which application was filed after our application. There are the two units as now unsited of -- that is, unsited, of Public Service Electric and Gas of New Jersey, which are about the same size, 1000 megawatts electric, also pressurized water reactors, and for which application was filed after our application.

Q Was that application withdrawn because of objections to the site?

A No, sir.

Q Was the site changed because of objections to the site?

A I understand only what I read in the press, Mr. Reader, that the site is -- a relocation of the site is being studied in view of the feeling of Divisional Reactor Licensing and the ACRS, that there are problems with the site initially proposed.

Q What is the meaning of the initials ACRS?

A Advisory Committee on Reactor Safeguards, sir.

Q Does that complete your list of those that you recall immediately of the stations based on information developed from operation of commercial and prototype pressurized water type reactors over a number of years?

A Yes, sir. I think that completes the list that comes to my mind immediately. Yes, sir. There are others, I know.

Q The Peaks Bottom Atomic Power Station Units 2 and 3 at Peaks Bottom, Pennsylvania, is that a pressurized water type?

A No, sir.

Q Did you mention in connection with the other stations in your last answer the Sanonovra Nuclear Generating Station of Southern California Edison?

A No, sir, I didn't.

Q Is that a pressurized water type reactor?

A Yes, sir, of an earlier vintage.

Q And that is 430 megawatt capacity?

A That is ballpark, yes, sir.

Q And are there any of these commercial pressurized water reactors now operating to which you referred in your Application Supplement 1, Paragraph 1.3, which are now operating or which have become operating since you filed your application on December 1, 1966?

MR. GRIGG: We object to the use of the word "commercial" in that question unless Mr. Reeder will define it.

MR. REEDER: Well, perhaps Mr. Lee will define the word "commercial" as he used it in Supplement No. 1, Paragraph 1.3 in the following sentence: "The design of each of these stations is based upon information developed from operation of commercial and prototype pressurized

water reactors over a number of years."

BY MR. REEDER:

Q Would you do that, please?

A I had in mind that the use of the word "commercial" would mean a plant that would make electricity that would be for sale. Now, to answer your first question, then, no, sir, none of those reactors cited in Section 1.3 nor that are listed are in operation, nor were they in operation at the time we had filed our application.

Q Did you have in mind any element of sale for profit when you used the word "commercial" in that sentence?

A I can't speak to all of those reactors we have just discussed. I am not familiar with their individual economics nor their exact intent with respect to profitability.

Q Well, with respect to the stations about which I have asked you and which were referred to in your Supplement 1, Paragraph 1.3, which were Duke's Oconee Station Units 1 and 2, Turkey Point Units 3 and 4, Indian Point Unit 2 and Brookwood of Rochester Gas and Electric Nuclear Power Stations, were those stations which you referred to in the sentence that the design of each of these stations is based upon information developed from operation of commercial and prototype pressurized water reactors over a number of years?

A No, sir, because none of those stations have operated.

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Q Well, Mr. Lee, is it not a fact that those stations are referred to in your supplement No. 1 to the application as the stations which have design and operating parameters close to those of the Duke facility?

A Yes, sir. I might insert the word "expected" operating parameters. None of these have operated, Mr. Reeder.

Q Do you mean, then, that these stations, Turkey Point, Indian Point, and Ginna may have reactors which are commercial and prototype pressurized water reactors?

A I don't know what now you mean applying to those stations by the terms "commercial" and "prototype," Mr. Reeder. The sentence at the end of the first paragraph or Section 1.3 means that the technical parameters applying to the design of the reactor systems and the expected operating parameters of the Oconee stations are expected to be similar to those expected from these other stations not yet running.

Q And you called those stations commercial stations?

A No. Down in the third paragraph that phraseology "commercial" and "prototype" pressurized water reactors referred to previous generations of nuclear power plants already running and not listed here. For example, the Parr Nuclear Station is a commercial and prototype pressurized water reactor.

Q Is it your testimony, then, Mr. Lee, that the Turkey Point Units 3 and 4, Con Edison's Indian Point Station Unit 2, and Brookwood Rochester Gas and Electric Nuclear Power Stations

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having megawatt electrical capacity of 722, 722, 873, and 420 megawatts electrical, respectively, were referred to by you in this sentence as stations which were prototypes and not commercial stations?

A No, sir.

Q And, directing your attention then to --

A I think I understood your question, Mr. Reeder. I am saying that the third paragraph, where we say, if I may read it now: "The design of each of these stations," and "each of these" refers to the four that we are talking about, "is based upon information developed from operation of commercial and prototype pressurized water reactors over a number of years."

"Commercial" and "prototype" pressurized water reactors refers to those previous to these four stations, many years back of the earlier vintage of this animal of which the Parr Nuclear Station is an example, the Shippingport Nuclear Station cited earlier today is an example.

Q Mr. Lee, directing your attention -- I am sorry, my last question. Directing your attention to the sentence in application supplement, paragraph 1.1, introduction, which reads as follows: "Construction is scheduled for completion in time for loading fuel into Unit 1 in December 1970 and for its commercial oepration by May 1971, with commercial operation of Unit 2 scheduled by May 1972," were you using

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the word "commercial operation" there in reference to mere proto.ype stations?

A No, sir. As I defined "commercial" in the previous question, I said "commercial" means electricity for sale.

MR. REEDER: That is all I have at this time.

CHAIRMAN JENSCH: This is somewhat beyond our usual recess time, but are there any matters that we might consider before we recess this evening?

State of South Carolina?

MR. LIGHTSEY: Mr. Chairman, if I might ask, unfortunately I am scheduled for a court a.pearance in another part of the State tomorrow, and I would like to ask the Chairman if I might be excused during the morning proceeding and if you are still in session beyond them, I will be back with you at a later time.

CHAIRMAN JENSCH: Request granted. Any other matter that might be considered? Staff counsel?

MR. ENGELHARDT: No, sir.

CHAIRMAN JENSCH: Applicant counsel?

MR. GRIGG: None.

CHAIRMAN JENSCH: At this time perhaps we might consider a convenient time for convening in the morning. We met at 10:00. Is some earlier hour convenient or advisable? What are the wishes of the parties?

MR. GRIGG: Convenient and advisable.

MR. ENGELHARDT: The staff is agreeable to an earlier hour than meeting at 10:00.

MR. REEDER: Satisfactory to us.

CHAIRMAN JENSCH: What time would be suitable?

MR. REEDER: The same time mentioned by staff counsel.

CHAIRMAN JENSCH: He just said any earlier time, and that starts a little earlier than I want to get here, I think. At this time let's recess, to reconvene in this room tomorrow morning at 9:30.

(Whereupon, at 4:40 o'clock p. m., the hearing was recessed, to reconvene the following morning, Wednesday, August 30, 1967, at 9:30 o'clock a. m.)

* * *

DOCKET NUMBER
PROD. & UTIL. FAC. 50-269, 270, 287

UNITED STATES ATOMIC ENERGY COMMISSION

IN THE MATTER OF:

[illegible]

Place - [illegible]

Date - [illegible]

Pages 122-208

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UNITED STATES OF AMERICA

ATOMIC ENERGY COMMISSION

IN THE MATTER OF	)	
	)	
DUKE POWER COMPANY	)	DOCKET NOS. 50-269
(Oconee Nuclear Station	)	50-270
Units 1, 2 and 3)	)	50-287

ORDER APPROVING CORRECTIONS TO TRANSCRIPT

The following constitute approved corrections to the transcript as proposed by the participants herein, and as modified by the Board:

Page	Line	Correction
17	15	Change "rofitable" to "profitable".
18	22	Change "experimentaion" to "experimentation".
28	1,11	Change "TALLEY" to "TALLY".
29	14	Change "TALLEY" to "TALLY".
32	6	Change "is" to "as".
38	6	Change "muniticipaities" to "municipalities".
39	24,25	Change "manditorily" to "mandatorily".
40	1	Change "manditorily" to "mandatorily".
	3	Change "outin" to "out in".
55	11	Change "particip at" to "participate".
64	8	Change "corss-" to "cross-".
94	9	Change "parcel" to "partial".

Page	Line	Correction
133	9	Change "Harris" to "Harry".
137	12	Delete "and" between "assistant" and "general".
138	2	Change "Stimson-" to "Stimpson-".
141	19	Change "under" to "from".
149	5	Change "Gray Cosmos" to "Craig Hosmer".
156	3	Change "would" to "would be".
182	24	Change "irregular" to "a regular".
192	4	Change "cola" to "coal".
193	21-22	Delete "construction of the Oconee Nuclear Station will be started as soon as a".
202	20	Change "his" to "its".
210	10	Change "as the" to "as to the".
214	19	Change "licensing" to "license".
215	12	Change "participation" to "partition".
	24	Change "utilities" to "utility's".
216	21	Change "fossile" to "fossil".
	22	Change "hydrostations" to "hydro stations".
	23	Change "currently" to "current".
219	10	Change "provision" to "provisions".
220	14,21	Change "participation" to "partition".
222	21	Change "properting" to "property".
228	3	Change "therefore" to "therefor".
	20	Insert "for" before "utilization".

Page	Line	Correction
230	8	Change "260,000 kilowatt" to "2,600,000 kilowatt".
234	21	Change "the" to "due".
235	9,10	Change "gentleman" to "gentlemen".
	14	Change "422014" to "Title 42, section 2014".
237	12	Change "destory" to "destroy".
239	4	Change "itme" to "time".
	20	Change "is" to "in".
	21	Change "life" to "legislative".
241	9	Change "ecample" to "example".
249	24	Change "denying" to "permitting".
250	1	Change "denial" to "intervention" and change "denied" to "permitted".
	19	Delete "denying the".
	20	Delete "of".
254	24-25	Delete "on the issues which are set forth" following "which are set forth".
263		Incorporate the Index to Staff and Applicant's Joint Exhibit A.
283	13	Change "Robertson" to "Robinson".
292	14	Change "Divisional" to "the Division of".
293	1,2	Change "Peaks" to "Peach".
	6	Change "Sanonovra" to "San Onofre".
296	24	Change "oepration" to "operation".
299	15	Change "10:00" to "9:30".

Page	Line	Correction
311	20	Change "Covered" to "Calvert".
327	22-23	Change "about $400 million from the sales of preferred and common stock" to read: "about $400 million from the sale of bonds, and about $125 million from the sale of preferred and common stock".
329	13	Change "largely" to "large".
353	19,21	Change "Army" to "Administrator".
354	18	Change "Army" to "Administrator".
362	3	Change "multim" to "multiple".
364	20	Delete the word "cause".
365	21	Change "same" to "steam".
371	3	Change "minor" to "major".
376	14,15	Change "steeling" to "settling".
381	3	Change "take" to "detect".
437	15-16	Change "statement of professional qualifications" to "testimony".
453	21	Change "on the" to "as on the".
463	19	Change "Carver" to "CARVA".
464	7	Change "Carver" to "CARVA".
465	10	Change "Carver" to "CARVA".
470	20	Change "magma" to "magna".
	21	Change "D" to "dye".
471	4	Change "blade" to "plate".
474	8	Change "course" to "court".
	14	Change "amy" to "may".

Page	Line	Correction
476	20	Change "adduced" to "induced".
477	14	Change "Carver" to "CARVA".
479	12	Change "Veitch" to "very much".
510	25	Change "inidcate" to "indicate".
511	11	Change "testifying" to "employment".
512	12	Change "petition" to "partition".
513	24	Change "before" to "dated".
514	20	Change "proving" to "proceeding".
517	7	Change "jurisidictional" to "jurisdictional".
520	17	Change "part intervenors" to "party intervenor".
	18	Change "applicant" to "application".
521	19	Change "It's before" to "It's not before".
528	23	Change "fact" to "Act".
530	2	Change "decision" to "discussion".
531	13	Change "petioning" to "petitioning".
532	9	Change "their" to "the".
	21	Change "petition" to "partition".
533	12	Change "yoru" to "your".
534	19	Change "oppose" to "impose".
541	17	Change "Hollander's" to "Holland-Smathers".
544	17	Change "have" to "offer".
545	11	Change "call your" to "call to your".
	18	Change "for" to "or".

Page	Line	Correction
547	12	Change "that an effect" to "the effect".
552	8	Change "Dukane" to "Duquesne".
554	16	Change "1,622 megawatts" to "2,622 megawatts".
565	14	Change "Colt" to "Coal".
569	12	Change "brining" to "bringing".
575	20	Change "Veitch" to "Veatch".
576	7	Change "hand't" to "hadn't".
	12	Change "reserve" to "reserved".
	20	Change "Veitch" to "Veatch".
577	7	Change "Veitch" to "Veatch".
	21	Change "Veitch" to "Veatch".
578	2	Change "Veitch" to "Veatch".
	4	Change "indiciation" to "indication".
	16	Change "ben" to "be".
580	6	Change "committted" to "committed".
584	14	Change "Y. Barney Bagnell" to "J. Garner Bagnal".
	18	Change "Cities" to "Systems".

ATOMIC SAFETY AND LICENSING BOARD

Samuel W Jensch

By Samuel W. Jensch, Chairman

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