

Docket Nos. **50-269**  
and **50-270**

JUL 19 1974

Duke Power Company  
ATTN: Mr. Austin C. Thies  
Senior Vice President,  
Production & Transmission  
422 South Church Street  
P. O. Box 2178  
Charlotte, North Carolina 28201

Gentlemen:

The Atomic Energy Commission has issued Amendments No. 3 to Facility Operating License Nos. DPR-38 and DPR-47 issued to Duke Power Company for the operation of the Oconee Nuclear Station, Units 1 and 2. The Amendments revise Operating License Nos. DPR-38 and DPR-47 in its entirety and the Technical Specifications, Appendices A and B, in accordance with your request of December 13, 1973 and June 19, 1974.

These Amendments consists of Change No. 13 to Facility Operating License No. DPR-38 and Change No. 8 to Facility Operating License No. DPR-47.

We have concluded that the issuance of these Amendments will not be inimical to the common defense and security or to the health and safety of the public, and that the Amendments do not involve a significant hazards consideration.

Copies of the Amendments, the Safety Evaluations and a related notice, which has been forwarded to the Office of the Federal Register for publication, are enclosed.

~~cc: JRBuchanan, ORNL  
TBAbemathy, DTIE  
ARosenthal, ASLAB  
NHGoodrich, ASLBP~~

Sincerely,

Original Signed by  
I. Peltier *for*  
A. Schwencer, Chief  
Light Water Reactors Branch 2-3  
Directorate of Licensing

Enclosures:

1. Amendment No. 3 to DPR-38
2. Amendment No. 3 to DPR-47
3. Safety Evaluations
4. Federal Register Notice

OFFICE	x7886/LWR 2-3	L:LWR 2-3	L:LWR 2-3		
cc:	See next page				
SURNAME	EGoulbourne:cjb	ASchwencer	IPeltier		
DATE	7/16/74	7/17/74	7/17/74		

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Duke Power Company

- 2 -

ORNL 10-1-74

cc: Mr. William L. Porter  
Duke Power Company  
P. O. Box 2178  
422 South Church Street  
Charlotte, North Carolina 28201

Mr. Elmer Whitten  
State Clearinghouse  
Office of the Governor  
Division of Administration  
1205 Pendleton Street  
Columbia, South Carolina 29201

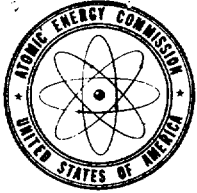
Mr. Troy B. Conner  
Conner, Hadlock & Knotts  
1747 Pennsylvania Avenue, N. W.  
Suite 1050  
Washington, D. C. 20006

Honorable Reese A. Hubbard  
County Supervisor of Oconee County  
Walhalla, South Carolina 29621

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bcc: J. R. Buchanan, ORNL  
T. B. Abernathy, DTIE  
A. Rosenthal, ASLAB  
N. H. Goodrich, ASLBP

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SURNAME ▶	EGoulbourne:bp	IAPeltier	ASchwencer	W.D. PAVAN	VAMoore	
DATE ▶	7/12/74	7/12/74	7/16/74	7/16/74	7/ /74	



UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON, D.C. 20545

DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 3  
License No. DPR-38

The Atomic Energy Commission (the Commission) having found that:

- a. The application for amendment by Duke Power Company (the licensee) dated June 19, 1974, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
- b. The facility will operate in conformity with the license, the provisions of the Act, and the rules and regulations of the Commission;
- c. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
- d. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
- e. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.

Accordingly, Facility Operating License No. DPR-38 is hereby amended in its entirety to read as follows:

1. This license applies to Oconee Nuclear Station, Unit 1, a pressurized water reactor and associated equipment (the facility) owned by the Duke Power Company. The facility is located in eastern Oconee County, about eight miles northeast of Seneca, South Carolina, and is described in the "Final Safety Analysis Report" as supplemented and amended (Amendments 1 through 47) and the Environmental Report as supplemented and amended (Supplement 1).
2. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Duke Power Company (the licensee):

- A. Pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities", to possess, use, and operate the facility at the designated location on the Oconee Nuclear Station Site in accordance with the procedures and limitations set forth in this license;
  - B. Pursuant to the Act and 10 CFR Parts 30, 40 and 70 to receive, possess and use at any time any byproduct, source and special nuclear material as reactor fuel, sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required for reactor operation;
  - C. Pursuant to the Act and 10 CFR Part 30 to receive, possess and use at any time 100 millicuries each of any byproduct material without restriction to chemical or physical form, for sample analysis or instrument calibration;
  - D. Pursuant to the Act and 10 CFR Parts 40 and 70 to receive, possess and use at any time 100 milligrams each of any source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration; and
  - E. Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
3. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I; Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

A. Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2568 megawatts thermal.

B. Technical Specifications

The Technical Specifications contained in Appendices A and B attached hereto are hereby incorporated in this license. The licensee shall operate the facility in accordance with the Technical Specifications.

C. This license is subject to the following additional conditions for the protection of the environment:

1. The licensee shall accumulate information required to establish baselines for the evaluation of thermal, chemical and radiological effects of station operation on terrestrial biota and aquatic biota in Lakes Keowee and Hartwell.
2. The licensee shall develop and implement a comprehensive monitoring program that will permit surveillance during plant operate of thermal, chemical, and radiological effects on terrestrial biota and on aquatic biota in Lakes Keowee and Hartwell.

D. This license is subject to the following antitrust conditions:

Applicant makes the commitments contained herein, recognizing that bulk power supply arrangements between neighboring entities normally tend to serve the public interest. In addition, where there are net benefits to all participants, such arrangements also serve the best interests of each of the participants. Among the benefits of such transactions are increased electric system reliability, a reduction in the cost of electric power, and minimization of the environmental effects of the production and sale of electricity.

Any particular bulk power supply transaction may afford greater benefits to one participant than to another. The benefits realized by a small system may be proportionately greater than those realized by a larger system. The relative benefits to be derived by the parties from a proposed transaction, however, should not be controlling upon a decision with respect to the desirability of participating in the transaction. Accordingly, applicant will enter into proposed bulk power transactions of the types hereinafter described which, on balance, provide net benefits to applicant. There are net benefits in a transaction if applicant recovers the cost of the transaction (as defined in ¶1(d) hereof) and there is no demonstrable net detriment to applicant arising from that transaction.

1. As used herein:

- (a) "Bulk Power" means electric power and any attendant energy, supplied or made available at transmission or sub-transmission voltage by one electric system to another.

- (b) "Neighboring Entity" means a private or public corporation, a governmental agency or authority, a municipality, a cooperative, or a lawful association of any of the foregoing owning or operating, or proposing to own or operate, facilities for the generation and transmission of electricity which meets each of the following criteria: (1) its existing or proposed facilities are economically and technically feasible of interconnection with those of the applicant and (2) with the exception of municipalities, cooperatives, governmental agencies or authorities, and associations, it is, or upon commencement of operations will be, a public utility and subject to regulation with respect to rates and service under the laws of North Carolina or South Carolina or under the Federal Power Act; provided, however, that as to associations, each member of such association is either a public utility as discussed in this clause (2) or a municipality, a cooperative or a governmental agency or authority.
  - (c) Where the phrase "neighboring entity" is intended to include entities engaging or proposing to engage only in the distribution of electricity, this is indicated by adding the phrase "including distribution systems".
  - (d) "Cost" means any appropriate operating and maintenance expenses, together with all other costs, including a reasonable return on applicant's investment, which are reasonably allocable to a transaction. However, no value shall be included for loss of revenues due to the loss of any wholesale or retail customer as a result of any transaction hereafter described.
2. (a) Applicant will interconnect and coordinate reserves by means of the sale and exchange of emergency and scheduled maintenance bulk power with any neighboring entity(ies), when there are net benefits to each party, on terms that will provide for all of applicant's properly assignable costs as may be determined by the Federal Power Commission and consistent with such cost assignment will allow the other party the fullest possible benefits of such coordination.
- (b) Emergency service and/or scheduled maintenance service to be provided by each party will be furnished to the fullest extent available from the supplying party and desired by the party in need. Applicant and each party will provide

to the other emergency service and/or scheduled maintenance service if and when available from its own generation and, in accordance with recognized industry practice, from generation of others to the extent it can do so without impairing service to its customers, including other electric systems to whom it has firm commitments.

- (c) Each party to a reserve coordination arrangement will establish its own reserve criteria, but in no event shall the minimum installed reserve on each system be less than 15%, calculated as a percentage of estimated peak load responsibility. Either party, if it has, or has firmly planned, installed reserves in excess of the amount called for by its own reserve criterion, will offer any such excess as may in fact be available at the time for which it is sought and for such period as the selling party shall determine for purchase in accordance with reasonable industry practice by the other party to meet such other party's own reserve requirement. The parties will provide such amounts of spinning reserve as may be adequate to avoid the imposition of unreasonable demands on the other party(ies) in meeting the normal contingencies of operating its (their) system(s). However, in no circumstances shall such spinning reserve requirement exceed the installed reserve requirement.
- (d) Interconnections will not be limited to low voltages when higher voltages are available from applicant's installed facilities in the area where interconnection is desired and when the proposed arrangement is found to be technically and economically feasible.
- (e) Interconnection and reserve coordination agreements will not embody provisions which impose limitations upon the use or resale of power and energy sold or exchanges pursuant to the agreement. Further, such arrangements will not prohibit the participants from entering into other interconnection and coordination arrangements, but may include appropriate provisions to assure that (i) applicant receives adequate notice of such additional interconnection or coordination, (ii) the parties will jointly consider and agree upon such measures, if any, as are reasonably necessary to protect the reliability of the interconnected systems and to prevent undue burdens from being imposed on any system, and (iii) applicant will be fully compensated for its costs. Reasonable industry practice as developed in the area from time to time will satisfy this provision.

3. Applicant currently has on file, and may hereafter file, with the Federal Power Commission contracts with neighboring entity(ies) providing for the sale and exchange of short-term power and energy, limited term power and energy, economy energy, non-displacement energy, and emergency capacity and energy. Applicant will enter into contracts providing for the same or for like transactions with any neighboring entity on terms which enable applicant to recover the full costs allocable to such transaction.
4. Applicant currently sells capacity and energy in bulk on a full requirements basis to several entities engaging in the distribution of electric power at retail. In addition, applicant supplies electricity directly to ultimate users in a number of municipalities. Should any such entity(ies) or municipality(ies) desire to become a neighboring entity as defined in §1(b) hereof (either alone or through combination with other), applicant will assist in facilitating the necessary transition through the sale of partial requirements firm power and energy. The provision of such firm partial requirements service shall be under such rates, terms and conditions as shall be found by the Federal Power Commission to provide for the recovery of applicant's costs. Applicant will sell capacity and energy in bulk on a full requirements basis to any municipality currently served by applicant when such municipality lawfully engages in the distribution of electric power at retail.
5. (a) Applicant will facilitate the exchange of electric power in bulk in wholesale transactions over its transmission facilities (1) between or among two or more neighboring entities, including distribution systems with which it is interconnected or may be interconnected in the future, and (2) between any such entity(ies) and any other electric system engaging in bulk power supply between whose facilities applicant's transmission lines and other transmission lines would form a continuous electric path, provided that permission to utilize such other transmission lines has been obtained. Such transaction shall be undertaken provided that the particular transaction reasonably can be accommodated by applicant's transmission system from a functional and technical standpoint and does not constitute the wheeling of power to a retail customer. Such transmission shall be on terms that fully compensate applicant for its cost. Any entity(ies) requesting such transmission arrangements shall give reasonable notice of its (their) schedule and requirements.



- (b) Applicant will include in its planning and construction program, sufficient transmission capacity as required for the transactions referred to in subparagraph (a) of this paragraph, provided that (1) the neighboring entity(ies) gives applicant sufficient advance notice as may be necessary reasonably to accommodate its (their) requirements from a functional and technical standpoint and (2) that such entity(ies) fully compensates applicant for its cost. In carrying out this subparagraph (b), however, applicant shall not be required to construct or add transmission facilities which (a) will be of no demonstrable present or future benefit to applicant, or (b) which could be constructed by the requesting entity(ies) without duplicating any portion of applicant's existing transmission lines, or (c) which would jeopardize applicant's ability to finance or construct on reasonable terms facilities needed to meet its own anticipated system requirements. Where regulatory or environmental approvals are required for the construction or addition of transmission facilities, needed for the transactions referred to in subparagraph (a) of this paragraph, it shall be the responsibility of the entity(ies) seeking the transaction to participate in obtaining such approvals, including sharing in the cost thereof.
6. To increase the possibility of achieving greater reliability and economy of electric generation and transmission facilities, applicant will discuss load projections and system development plans with any neighboring entity(ies).
7. When applicant's plans for future nuclear generating units (for which application will hereafter be made to the Atomic Energy Commission) have reached the stage of serious planning, but before firm decisions have been made as to the size and desired completion date of the proposed nuclear units, applicant will notify all neighboring entities, including distribution systems with peak loads smaller than applicant's, that applicant plans to construct such nuclear units. Neither the timing nor the information provided need be such as to jeopardize obtaining the required site at the lowest possible cost.
8. The foregoing commitments shall be implemented in a manner consistent with the provisions of the Federal Power Act and all other lawful local, state and Federal regulation and authority. Nothing in these commitments is intended to determine in advance the resolution of issues which are

properly raised at the Federal Power Commission concerning such commitments, including allocation of costs or the rates to be charged. Applicant will negotiate (including the execution of a contingent statement of intent) with respect to the foregoing commitments with any neighboring entity including distribution systems where applicable engaging in or proposing to engage in bulk power supply transactions, but applicant shall not be required to enter into any final arrangement prior to resolution of any substantial questions as to the lawful authority of an entity to engage in the transactions. In addition, applicant shall not be obligated to enter into a given bulk power supply transaction if: (1) to do so would violate, or incapacitate it from performing any existing lawful contract it has with a third party; (2) there is contemporaneously available to it, a competing or alternative arrangement which affords it greater benefits which would be mutually exclusive of such arrangement; (3) to do so would adversely affect its system operations or the reliability of power supply to its customers, or (4) if to do so would jeopardize applicant's ability to finance or construct on reasonable terms facilities needed to meet its own anticipated system requirements.

- E. This license amendment is effective as of the date of issuance and shall expire at midnight, November 6, 2007.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by

Voss A. Moore, Assistant Director  
for Light Water Reactors, Group 2  
Directorate of Licensing

Attachments:

Change No. 13 to Appendices A and B  
Technical Specifications License No. DPR-38

Date of Issuance: **JUL 19 1974**

SAFETY EVALUATION BY THE DIRECTORATE OF LICENSING

SUPPORTING AMENDMENTS NO. 3

CHANGE NO. 13 TO TECHNICAL SPECIFICATIONS FOR FACILITY LICENSE NO. DPR-38

CHANGE NO. 8 TO TECHNICAL SPECIFICATIONS FOR FACILITY LICENSE NO. DPR-47

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-260 AND 50-270

INTRODUCTION

The Oconee Nuclear Station, Units 1, 2 and 3 are essentially identical units and received concurrent review by the staff of the Directorate of Licensing prior to licensing. In particular, the Technical Specifications which are a part of the operating licenses (Appendices A and B) will be identical for all three units.

During the preparation of Technical Specifications for Unit 3 certain changes were made which need to be incorporated into the Appendix A for Units 1 and 2.

Also in the interim between licensing Units 1 and 2 and licensing Unit 3 certain language changes were made in the body of the license to incorporate broad coverage of special nuclear materials, sources and byproduct materials.

Consequently, upon issuance of the Oconee Unit 3 license, the Oconee Units 1 and 2 licenses must be amended to incorporate the above changes in order to achieve consistency in the licenses for all three reactor units at the Oconee Station.

The changes in the Technical Specification package (Appendix A) which will apply to all three units are as follows:

1. Safety Limits and Limiting Safety System Settings were added for Unit 3 (Units 1 and 2 not changed).
2. Limiting Conditions for Operation were added for Unit 3 (Units 1 and 2 not changed other than to improve clarity and interpretations).
3. Surveillance Requirements are written on a station basis and additional surveillance requirements were added to cover radioactive materials sources and environmental monitoring not previously covered by the Technical Specifications.
4. Administrative Controls are written on a station basis and have been revised to include additional reporting requirements consistent with Regulatory Guides 1.16 and 1.21.

The changes in the body of the license pertaining to broad coverage of special nuclear materials, sources and byproduct materials are for the purpose of incorporating standard language consistent with the current Regulatory position regarding the licensing of these materials and pursuant to 10 CFR Parts 30, 40 and 70.

## EVALUATION

With respect to Units 1 and 2 the following changes have been evaluated since they constitute basic changes in the existing Units 1 and 2 Technical Specifications.

### 1. Section 3.2.2 Limiting Conditions for Operation

This section in the present Technical Specification as worded is more restrictive than intended because transfer of boric acid solution from the mix tank to the boric acid storage tank is prohibited which defeats the normal function of these systems; i.e., the liquid level, liquid volume and solution are specified for both tanks making fluid transfer impractical. The proposed change allows the boric acid concentration to vary provided the amount of boron in the tanks are equivalent to the required amounts, 10,600 p.p.m. for 450 ft<sup>3</sup> of solution for the boric acid mix tank and 8700 p.p.m. for 550 ft<sup>3</sup> for the storage tank. The requirement to maintain the solution 10°F above the crystallization temperature and piping heating requirement remain unchanged. The required amount and availability of the required amount of boron as a backup to the borated water storage tank to bring the reactor to a safe shutdown condition also remains unchanged. The conditions under which boric acid solution may be transferred are such that the required amount of boron is always available. The margin of safety established by the current specification has been maintained.

### 2. Section 4.6.3 Surveillance

This section now requires a simulated transfer to the 4160 volt main feeder buses to transformers CT1, CT2 and CT3 and to the 4160 volt standby buses to verify proper operation. This test should not be performed when the plant is in an operating condition. The annual requirement has been changed to refueling period while the plant is shutdown. The change in the surveillance period will not be significantly affected because a six month tolerance is presently allowed in the annual requirement. This specification applies to the station and has been included in the Staff review.

### 3. Section 4.11 Environmental Surveillance

This section has been revised to reflect current Regulatory positions and to more clearly define these surveillance requirements; e.g., a table listing all sampling sites and the samples to be taken at each site including the sampling frequency has been added. Reporting requirements have been clarified by referencing Section 6.6 (Reporting Requirements). The specific nuclides to be included in sample analysis have been added in several instances and clarified in others. The basis for this specification has been changed to better describe the specification. This specification applies to the station and has been included in the Staff review.

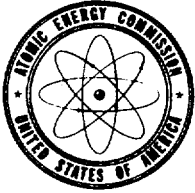
### CONCLUSION

The staff concludes that: (1) the change does not involve a significant hazards consideration since it does not involve a safety consideration of a type or magnitude not considered by any previous staff safety review of that facility, a substantial increase in the probability or consequences of an accident considered in any previous staff safety review, or a substantial decrease in the margin of safety during normal plant operation, anticipated operational occurrences or postulated accidents considered in any previous staff safety review; and (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner.

Original Signed by  
Leo McDonough  
Operating Reactor Branch #1  
Directorate of Licensing

Original Signed by  
I. Peltier *for*  
A. Schwencer, Chief  
Light Water Reactors Branch 2-3  
Directorate of Licensing

Date of Issuance: JUL 19 1974



UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON, D.C. 20545

DUKE POWER COMPANY

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 3  
License No. DPR-47

The Atomic Energy Commission (the Commission) having found that:

- a. The application for amendment by Duke Power Company (the licensee) dated June 19, 1974, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
- b. The facility will operate in conformity with the license, the provisions of the Act, and the rules and regulations of the Commission;
- c. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
- d. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
- e. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.

Accordingly, Facility Operating License No. DPR-47 is hereby amended in its entirety to read as follows:

1. This license applies to Oconee Nuclear Station, Unit 2, a pressurized water reactor and associated equipment (the facility) owned by the Duke Power Company. The facility is located in eastern Oconee County, about eight miles northeast of Seneca, South Carolina, and is described in the "Final Safety Analysis Report" as supplemented and amended (Amendments 1 through 47) and the Environmental Report as supplemented and amended (Supplement 1).
2. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Duke Power Company (the licensee):

C. This license is subject to the following additional conditions for the protection of the environment:

1. The licensee shall accumulate information required to establish baselines for the evaluation of thermal, chemical and radiological effects of station operation on terrestrial biota and aquatic biota in Lakes Keowee and Hartwell.
2. The licensee shall develop and implement a comprehensive monitoring program that will permit surveillance during plant operate of thermal, chemical, and radiological effects on terrestrial biota and on aquatic biota in Lakes Keowee and Hartwell.

D. This license is subject to the following antitrust conditions:

Applicant makes the commitments contained herein, recognizing that bulk power supply arrangements between neighboring entities normally tend to serve the public interest. In addition, where there are net benefits to all participants, such arrangements also serve the best interests of each of the participants. Among the benefits of such transactions are increased electric system reliability, a reduction in the cost of electric power, and minimization of the environmental effects of the production and sale of electricity.

Any particular bulk power supply transaction may afford greater benefits to one participant than to another. The benefits realized by a small system may be proportionately greater than those realized by a larger system. The relative benefits to be derived by the parties from a proposed transaction, however, should not be controlling upon a decision with respect to the desirability of participating in the transaction. Accordingly, applicant will enter into proposed bulk power transactions of the types hereinafter described which, on balance, provide net benefits to applicant. There are net benefits in a transaction if applicant recovers the cost of the transaction (as defined in ¶1(d) hereof) and there is no demonstrable net detriment to applicant arising from that transaction.

1. As used herein:

- (a) "Bulk Power" means electric power and any attendant energy, supplied or made available at transmission or sub-transmission voltage by one electric system to another.

- (b) "Neighboring Entity" means a private or public corporation, a governmental agency or authority, a municipality, a cooperative, or a lawful association of any of the foregoing owning or operating, or proposing to own or operate, facilities for the generation and transmission of electricity which meets each of the following criteria: (1) its existing or proposed facilities are economically and technically feasible of interconnection with those of the applicant and (2) with the exception of municipalities, cooperatives, governmental agencies or authorities, and associations, it is, or upon commencement of operations will be, a public utility and subject to regulation with respect to rates and service under the laws of North Carolina or South Carolina or under the Federal Power Act; provided, however, that as to associations, each member of such association is either a public utility as discussed in this clause (2) or a municipality, a cooperative or a governmental agency or authority.
  - (c) Where the phrase "neighboring entity" is intended to include entities engaging or proposing to engage only in the distribution of electricity, this is indicated by adding the phrase "including distribution systems".
  - (d) "Cost" means any appropriate operating and maintenance expenses, together with all other costs, including a reasonable return on applicant's investment, which are reasonably allocable to a transaction. However, no value shall be included for loss of revenues due to the loss of any wholesale or retail customer as a result of any transaction hereafter described.
2. (a) Applicant will interconnect and coordinate reserves by means of the sale and exchange of emergency and scheduled maintenance bulk power with any neighboring entity(ies), when there are net benefits to each party, on terms that will provide for all of applicant's properly assignable costs as may be determined by the Federal Power Commission and consistent with such cost assignment will allow the other party the fullest possible benefits of such coordination.
- (b) Emergency service and/or scheduled maintenance service to be provided by each party will be furnished to the fullest extent available from the supplying party and desired by the party in need. Applicant and each party will provide



to the other emergency service and/or scheduled maintenance service if and when available from its own generation and, in accordance with recognized industry practice, from generation of others to the extent it can do so without impairing service to its customers, including other electric systems to whom it has firm commitments.

- (c) Each party to a reserve coordination arrangement will establish its own reserve criteria, but in no event shall the minimum installed reserve on each system be less than 15%, calculated as a percentage of estimated peak load responsibility. Either part, if it has, or has firmly planned, installed reserves in excess of the amount called for by its own reserve criterion, will offer any such excess as may in fact be available at the time for which it is sought and for such period as the selling party shall determine for purchase in accordance with reasonable industry practice by the other party to meet such other party's own reserve requirement. The parties will provide such amounts of spinning reserve as may be adequate to avoid the imposition of unreasonable demands on the other party(ies) in meeting the normal contingencies of operating its (their) system(s). However, in no circumstances shall such spinning reserve requirement exceed the installed reserve requirement.
- (d) Interconnections will not be limited to low voltages when higher voltages are available from applicant's installed facilities in the area where interconnection is desired and when the proposed arrangement is found to be technically and economically feasible.
- (e) Interconnection and reserve coordination agreements will not embody provisions which impose limitations upon the use or resale of power and energy sold or exchanges pursuant to the agreement. Further, such arrangements will not prohibit the participants from entering into other interconnection and coordination arrangements, but may include appropriate provisions to assure that (i) applicant receives adequate notice of such additional interconnection or coordination, (ii) the parties will jointly consider and agree upon such measures, if any, as are reasonably necessary to protect the reliability of the interconnected systems and to prevent undue burdens from being imposed on any system, and (iii) applicant will be fully compensated for its costs. Reasonable industry practice as developed in the area from time to time will satisfy this provision.

3. Applicant currently has on file, and may hereafter file, with the Federal Power Commission contracts with neighboring entity(ies) providing for the sale and exchange of short-term power and energy, limited term power and energy, economy energy, non-displacement energy, and emergency capacity and energy. Applicant will enter into contracts providing for the same or for like transactions with any neighboring entity on terms which enable applicant to recover the full costs allocable to such transaction.
4. Applicant currently sells capacity and energy in bulk on a full requirements basis to several entities engaging in the distribution of electric power at retail. In addition, applicant supplies electricity directly to ultimate users in a number of municipalities. Should any such entity(ies) or municipality(ies) desire to become a neighboring entity as defined in §1(b) hereof (either alone or through combination with other), applicant will assist in facilitating the necessary transition through the sale of partial requirements firm power and energy. The provision of such firm partial requirements service shall be under such rates, terms and conditions as shall be found by the Federal Power Commission to provide for the recovery of applicant's costs. Applicant will sell capacity and energy in bulk on a full requirements basis to any municipality currently served by applicant when such municipality lawfully engages in the distribution of electric power at retail.
5. (a) Applicant will facilitate the exchange of electric power in bulk in wholesale transactions over its transmission facilities (1) between or among two or more neighboring entities, including distribution systems with which it is interconnected or may be interconnected in the future, and (2) between any such entity(ies) and any other electric system engaging in bulk power supply between whose facilities applicant's transmission lines and other transmission lines would form a continuous electric path, provided that permission to utilize such other transmission lines has been obtained. Such transaction shall be undertaken provided that the particular transaction reasonably can be accommodated by applicant's transmission system from a functional and technical standpoint and does not constitute the wheeling of power to a retail customer. Such transmission shall be on terms that fully compensate applicant for its cost. Any entity(ies) requesting such transmission arrangements shall give reasonable notice of its (their) schedule and requirements.

- (b) Applicant will include in its planning and construction program, sufficient transmission capacity as required for the transactions referred to in subparagraph (a) of this paragraph, provided that (1) the neighboring entity(ies) gives applicant sufficient advance notice as may be necessary reasonably to accommodate its (their) requirements from a functional and technical standpoint and (2) that such entity(ies) fully compensates applicant for its cost. In carrying out this subparagraph (b), however, applicant shall not be required to construct or add transmission facilities which (a) will be of no demonstrable present or future benefit to applicant, or (b) which could be constructed by the requesting entity(ies) without duplicating any portion of applicant's existing transmission lines, or (c) which would jeopardize applicant's ability to finance or construct on reasonable terms facilities needed to meet its own anticipated system requirements. Where regulatory or environmental approvals are required for the construction or addition of transmission facilities, needed for the transactions referred to in subparagraph (a) of this paragraph, it shall be the responsibility of the entity(ies) seeking the transaction to participate in obtaining such approvals, including sharing in the cost thereof.
6. To increase the possibility of achieving greater reliability and economy of electric generation and transmission facilities, applicant will discuss load projections and system development plans with any neighboring entity(ies).
  7. When applicant's plans for future nuclear generating units (for which application will hereafter be made to the Atomic Energy Commission) have reached the stage of serious planning, but before firm decisions have been made as to the size and desired completion date of the proposed nuclear units, applicant will notify all neighboring entities, including distribution systems with peak loads smaller than applicant's, that applicant plans to construct such nuclear units. Neither the timing nor the information provided need be such as to jeopardize obtaining the required site at the lowest possible cost.
  8. The foregoing commitments shall be implemented in a manner consistent with the provisions of the Federal Power Act and all other lawful local, state and Federal regulation and authority. Nothing in these commitments is intended to determine in advance the resolution of issues which are

properly raised at the Federal Power Commission concerning such commitments, including allocation of costs or the rates to be charged. Applicant will negotiate (including the execution of a contingent statement of intent) with respect to the foregoing commitments with any neighboring entity including distribution systems where applicable engaging in or proposing to engage in bulk power supply transactions, but applicant shall not be required to enter into any final arrangement prior to resolution of any substantial questions as to the lawful authority of an entity to engage in the transactions. In addition, applicant shall not be obligated to enter into a given bulk power supply transaction if: (1) to do so would violate, or incapacitate it from performing any existing lawful contract it has with a third party; (2) there is contemporaneously available to it, a competing or alternative arrangement which affords it greater benefits which would be mutually exclusive of such arrangement; (3) to do so would adversely affect its system operations or the reliability of power supply to its customers, or (4) if to do so would jeopardize applicant's ability to finance or construct on reasonable terms facilities needed to meet its own anticipated system requirements.

- E. This license amendment is effective as of the date of issuance and shall expire at midnight, November 6, 2007.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by

Voss A. Moore, Assistant Director  
for Light Water Reactors, Group 2  
Directorate of Licensing

Attachments:

Change No. 8 to Appendices A and B  
Technical Specifications License No. DPR-47

Date of Issuance: **JUL 19 1974**

JUL 19 1974

UNITED STATES ATOMIC ENERGY COMMISSION  
EVALUATION BY THE DIRECTORATE OF LICENSING  
DUKE POWER COMPANY  
DOCKET NOS. 50-269, 50-270, & 50-287  
CHANGE IN APPENDIX B TECHNICAL SPECIFICATIONS

Liquid effluent from the Oconee Nuclear Station is discharged into the tailrace of the Keowee Dam. Effluent from the radioactive waste collection and processing system is discharged to the tailrace from either the Low Activity Waste Tank or from the two Condensate Test Tanks. The later tanks collect the overheads from the Waste Evaporator or the Reactor Coolant Bleed Evaporator. The Low Activity Waste Tank normally collects secondary system equipment leakage, gland seal leakage from pumps, auxiliary building floor drains, laundry wastes, component cooling system leakage, etc. Liquid wastes from these sources would normally contain little or no boric acid. However, the Low Activity Waste Tank can also receive effluent from the reactor coolant bleed system and, by transfer from the High Activity Waste Tank and the Miscellaneous Waste Holdup Tank. These other sources could contain significant concentrations of boric acid. The maximum pump-out rate from the Low Activity Waste Tank and the Condensate Test Tanks is 50gpm, each. A plant operating procedure limits pump-out to one source at a time. In a supplement to their Environmental Report, Duke Power estimated that if the borated waste water was processed in the evaporator, this would reduce the boron concentration to 10ppm (Page 16). The processed borated water would be diluted with river water in the tailrace to meet discharge specifications.

In their Environmental Report, Duke Power described their plans for usage of chemicals in plant processes. Review of these plans indicated that the discharges would not be hazardous to the environment. To assure that any major change in chemical usage or discharge would be preceded by appropriate review of the environmental impact, Appendix B of the Oconee Technical Specifications included the Applicant's projected annual releases of chemicals as average limits on the amount of chemicals that could be discharged from the station. These limits were expressed in terms of the average and maximum concentration of the chemicals in Keowee River water after dilution in the tailrace. Chemical Discharge Limits are contained in Section 1.2; "Specification A" states: "Chemical wastes and the resulting chemical concentrations in the Keowee River shall not exceed the maximum concentrations given in Table 1.2-1. For boric acid, Table 1.2-1 lists an average and maximum concentration of  $2.4 \times 10^{-5}$  ppm and  $8.8 \times 10^{-4}$  ppm respectively, as the resulting concentration in Keowee River water. These values were derived by dividing the average river flow of 1100 cfs (prior to construction of the Keowee Dam) and the minimum tailrace flow of 30 cfs (expected leakage through the hydro facility) by the expected annual discharge of boric acid from the Oconee Station. These limits have been demonstrated to be impractical and unnecessarily stringent.

JUL 19 1974

1. Liquid waste discharge is a batch type operation rather than a continuous discharge. Liquid waste is collected in storage tanks. When a particular tank is full, a sample is analyzed for activity and chemical composition. If the contents of the tank are within effluent release specifications, the tank is discharged. If not, the contents are processed by filtration, evaporation and/or ion exchange and collected in test tanks. If the contents now meet release specifications, the test tank is discharged; if not, the liquid is reprocessed until it does meet specifications. The time between discharges of a particular waste collection tank will vary depending on plant operations, maintenance activities, system leakage, etc. A discharge limit based on average release concentrations is not practical.
2. The chemical release limits for Oconee were based on the resulting concentration in the Keowee River, considering only the chemicals to be discharged by the plant and not what was already in the river. Naturally occurring boron in the Keowee River is  $6 \times 10^{-3}$  ppm - over ten times higher than the maximum concentration listed in the Technical Specification.
3. The specified limit is less than the sensitivity of the standard method of analysis for boric acid. With the present unrealistic limit in the Oconee Technical Specification on boron, Duke Power has often not been able to discharge liquid waste. Instead, the licensee has hauled the liquid waste offsite in tank trucks, which poses more of an environmental impact than if the waste were discharged to the Keowee River. As of November 27, 1973, approximately 117,000 gallons of low activity waste water has been trucked offsite. By letter dated December 13, Duke Power requested a change in Appendix B to the Oconee Technical Specifications to remove the limit on boron from Table 1.2-1. In lieu of a limit, the licensee stated that the plant would be operated in such a manner that, even during periods of maximum chemical discharge and minimum river flow, the resulting boric acid concentration in the Keowee River would be less than 1.0 ppm.

The licensee's proposed change was reviewed by the staff; while the staff agreed with the licensee that a change in the Technical Specification was warranted, the staff did not concur with deletion of a limit on the discharge of boron. The changes discussed below are those developed in subsequent discussions and correspondence with the licensee.

The Keowee River downstream of Keowee Dam is not used as public water supply. The Keowee River empties into Hartwell Reservoir. The Hartwell Dam impounds the much larger Tugaloo River and forms the headwater for the Savannah River. Hartwell Reservoir, which according to the FPC has a usable power storage of 1,415,000 acre-feet, is used as a source of public water supply.

Boron is a relatively nontoxic chemical. Boric acid or borates are used in eyewashes, medicines, ointments, cleaners, detergents, and many other compounds around the home. According to Sax's "Dangerous Properties of Industrial Materials," boron compounds are not highly toxic and therefore are not considered an industrial poison. Boron, however, is one of a group of elements, such as lead, manganese and arsenic, which is a cumulative poison and affects the central nervous system. Boron is widely occurring in nature and is generally present in runoff water.

The most critical concern for boron discharges is the potential effect when the receiving stream is used as a public water supply or for irrigation. The boron levels of interest will have no discernable effect on aquatic life. According to WASH-1249, Toxicity of Power Plant Chemicals to Aquatic Life boron in drinking water is not regarded as a hazard to human beings and concentrations up to 30ppm in drinking water are said to be not harmful. Relatively high concentrations are required to produce toxic effects in aquatic life."

The Public Health Service had established a limit of 1ppm of boron in their recommended standard for drinking water. This same limit was also recommended by the National Technical Advisory Committee in their report, "Water Quality Criteria," to the Secretary of the Interior, April 1, 1968. This limit was continued by EPA as a proposed criteria when they assumed responsibility for water quality standards, pending investigation by a task group in the Drinking Water Supply Division. In 1970, the task force summarized the results of the studies on rats, dogs, humans, and plant life and recommended a limit of 5ppm on boron in drinking water, with an emergency limit of 25ppm according to Dr. Benjamin H. Pringle, Chief, Criteria and Standards Development Branch, Water Supply Division, EPA, boron has been deleted from the 1974 drinking water standards since, nationally, the concentration of boron in essentially all public water supplies was less than 1ppm and the relative toxicity did not warrant inclusion of a standard on boron. It was the opinion of Dr. Pringle and Mr. James K. McDermott, Director, Drinking Water Supply Division that a limit of less than 1ppm on boron from an industrial discharge would provide a good factor of safety physiologically.

Duke Power has proposed a limit of 0.2ppm on boron in discharges from the Oconee Nuclear Station (equivalent to 1ppm as boric acid). Based on the studies by EPA and the uses of the Keowee and Savannah River, the staff concludes that the present limit on discharge of boric acid from the Oconee Nuclear Station is unnecessarily stringent and that the licensee's proposed limit of 0.2ppm on boron is well below any level considered harmful to aquatic or terrestrial life. Accordingly, it is recommended that the present maximum limit in the Oconee Technical Specifications on discharge of boron be changed to 0.2ppm and that the average limit be deleted.

JUL 19 1974

While evaluating the proposed changes in boron and pH of Oconee discharges, the staff reviewed the overall limits on discharges of other chemical wastes. The staff concluded that, for the reasons discussed previously, the significant limits were those on maximum resulting increases in the concentration of the particular chemical in the Keowee River and that the average limits in the present Table 1.2-1 should be deleted. The recommended revised Table 1.2-1, "Chemical Wastes from Oconee Nuclear Station," is attached as Attachment 3.

In the yard of the Oconee Nuclear Station, Duke Power constructed a holding pond to collect nonradioactive liquid wastes (excluding sanitary wastes) from the plant. The pond was primarily intended to hold-up spent demineralizer regeneration solutions and preoperational chemical cleaning solutions plus miscellaneous drains so they could be sampled and neutralized prior to being combined with yard drainage and released to the tailrace of the Keowee dam. Technical Specification 1.2B of Appendix B states, "All water discharged from the waste water collection basin shall have a pH between 6.0 and 8.5." Duke Power experienced some problems in adjusting the pH of water in the holding pond within the range of 6.0 to 8.5. During 1973, the pH of waste water discharged from the pond was outside the specified range 74 times. The actual discharge pH on these occasions, along with the corrective action taken and the cause of the condition is reported in Duke Power Company's two semiannual reports for 1973 on the Oconee Nuclear Station. According to the licensee, the pH of waste water actually discharged to the Keowee tailrace was only outside the specified range on two occasions due to the dilution, buffering and neutralization effects of combining the holding pond discharge with yard drainage prior to release to the tailrace. In their letter of December 13, 1973, Duke Power requested that Technical Specification 1.2B be revised to specify that the point of measurement on waste water pH be at the discharge to the environment (discharge to tailrace) rather than a point within the Oconee Station yard (i.e., the discharge from the holding pond).

Based on R.O.'s inspections, the problem in maintaining pH in the holding pond within the specified range appeared to be due to a number of factors. The volume of the holding pond appeared to be too small to retain the volumes of acid and caustic regenerating solutions and the large volumes of chemical cleaning solvents generated by the preoperational cleaning of Units 2 and 3. According to Duke's Environmental Report, the settling basin can accommodate 5,000,000 gallons of water between the elevations of its two discharge lines. The single recirculation pump, which was not operable for eight days in December 1973, did not have the capacity to turnover the volume of water in the pond consistent with the retention time. Based on the water chemistry data, it also appeared that the plant makeup water system warranted review with respect to mechanical problems (e.g., faulty valve operation), programming of regeneration levels, the effect of the flocculating agent (that had to be added to remove a finely divided suspended material present in the raw water) on the demineralizers, absence of a degasifier in the makeup water system, etc. According to minutes of the Oconee



Nuclear Safety Review Committee, plant personnel had recommended as early as March 1973 that the volume of the holding pond be increased. By letter dated February 11, 1974, the staff requested information from Duke Power on what considerations were being given to enlarging the waste collection basin. In their reply of March 11, 1974, the licensee described the plans for constructing another basin, for increased recirculation and higher turnover rates and for improved controls. With these proposed design modifications, the staff concurs with Duke Power Company's proposed revision to Technical Specification 1.2B of Appendix B to read: "The discharge to the Keowee River from the waste water retention basins and associated drainage shall have a pH between 6.0 and 8.5."

The above changes in the Technical Specifications will not change the design of the facility or the procedures for operating the reactor plant. The only changes in tests or experiments are with respect to monitoring the effect of the facility on the environment. The changes do not effect the Commission's safety evaluation of the facility or the Commission's conclusion that the facility should be licensed. In accordance with the provisions of Section 50.59(e)(2), it is the staff's conclusions that the changes in Appendix B to the Technical Specifications described herein should be approved.

#### CONCLUSIONS

The staff concludes that: 1) the change does not involve a significant hazard consideration since it does not involve a safety consideration of a type or magnitude not considered by any previous staff safety review of that facility, a substantial increase in the probability or consequence of an accident considered in any previous staff safety review, or a substantial decrease in the margin of safety during normal plant operations, anticipated operational occurrences or postulated accidents considered in any previous staff safety review; and 2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner.

original signed by  
Dino C. Scaletti

Dino C. Scaletti, Project Manager  
Environmental Projects Branch 2  
Directorate of Licensing

original signed by  
Paul H. Leech for

Gordon K. Dicker, Chief  
Environmental Projects Branch 2  
Directorate of Licensing

UNITED STATES ATOMIC ENERGY COMMISSION

DOCKET NOS. 50-269 & 50-270

DUKE POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

Notice is hereby given that the U. S. Atomic Energy Commission (the Commission) has issued Amendments No. 3 to Facility Operating License Nos. DPR-38 and DPR-47 (respectively) issued to the Duke Power Company which revised Technical Specifications for operation of the Oconee Nuclear Station, Units 1 and 2, located in Oconee County, South Carolina. The amendments are effective as of the date of issuance.

The amendments provide for changes in the license and the Technical Specifications, Appendices A and B to incorporate broad coverage of special nuclear materials, sources and byproduct materials and to make the Technical Specifications the same for all 3 Units.

The application for amendments comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments.

For further details with respect to these actions, see (1) the application for amendments dated June 19, 1974, (2) Amendments No. 3 to License No. DPR-38 and License No. DPR-47, with any attachments, and (3) the Commission's related Safety Evaluation dated **JUL 19 1974** . All of these are available for public

inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Oconee County Library, 201 S. Spring Street, Walhalla, South Carolina 29691.

A copy of items (2) and (3) may be obtained upon request addressed to the United States Atomic Energy Commission, Washington, D. C. 20545, Attention: Deputy Director for Reactor Projects, Directorate of Licensing - Regulation.

Dated at Bethesda, Maryland, this **JUL 19 1974**

FOR THE ATOMIC ENERGY COMMISSION

Original Signed By

A. Schwencer

A. Schwencer, Chief

Light Water Reactors Branch 2-3

Directorate of Licensing