

MARCH 19 1979

Dockets Nos. 50-269
50-270
and 50-287

Duke Power Company
ATTN: Mr. William O. Parker, Jr.
Vice President - Steam Production
422 South Church Street
Post Office Box 2178
Charlotte, North Carolina 28242

Gentlemen:

The Commission has issued the enclosed Amendments Nos. 71, 71, and 88 for Licenses Nos. DPR-38, DPR-47 and DPR-55 for the Oconee Nuclear Station, Units Nos. 1, 2 and 3. These amendments consist of changes to the Station's common Technical Specifications and are in response to your request dated February 21, 1978.

These amendments revise the Technical Specifications to incorporate changes to the Oconee Unit No. 1 pressurization, heatup and cooldown limitations.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original signed by
Robert W. Reid

*Copy
Clp.*

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures and cc:
See next page

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

March 19, 1979

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ATTN: Mr. William O. Parker, Jr.
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These amendments revise the Technical Specifications to incorporate changes to the Oconee Unit No. 1 pressurization, heatup and cooldown limitations.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

A handwritten signature in cursive script that reads "Robert W. Reid".

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures and cc:
See next page

Duke Power Company

Enclosures:

1. Amendment No. 71 to DPR-38
2. Amendment No. 71 to DPR-47
3. Amendment No. 68 to DPR-55
4. Safety Evaluation
5. Notice

cc w/enclosures: See next page

Duke Power Company

cc: Mr. William L. Porter
Duke Power Company
P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

J. Michael McGarry, III, Esquire
DeBevoise & Liberman
700 Shoreham Building
806-15th Street, NW.,
Washington, D.C. 20005

Oconee Public Library
201 South Spring Street
Walhalla, South Carolina 29691

Honorable James M. Phinney
County Supervisor of Oconee County
Walhalla, South Carolina 29621

Chief, Energy Systems
Analyses Branch (AW-459)
Office of Radiation Programs
U. S. Environmental Protection Agency
Room 645, East Tower
401 M Street, S. W.
Washington, D. C. 20460

U. S. Environmental Protection Agency
Region IV Office
ATTN: EIS COORDINATOR
345 Coutland Street, N. E.
Atlanta, Georgia 30308

cc w/enclosures & incoming dtd:
2/21/78

Office of Intergovernmental Relations
116 West Jones Street
Raleigh, North Carolina 27603



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

DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 71
License No. DPR-38

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Duke Power Company (the licensee) dated February 21, 1978, 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 application, 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. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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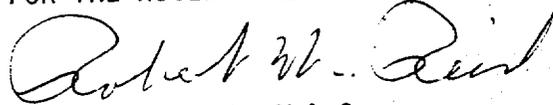
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B of Facility Operating License No. DPR-38 is hereby amended to read as follows:

3.B Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 71 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 19, 1979



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

DUKE POWER COMPANY

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 71
License No. DPR-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Duke Power Company (the licensee) dated February 21, 1978, 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 application, 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. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

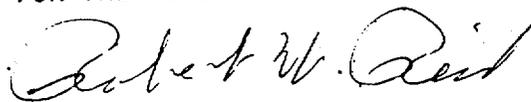
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B of Facility Operating License No. DPR-47 is hereby amended to read as follows:

3.B Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 71 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 19, 1979



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

DUKE POWER COMPANY

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 68
License No. DPR-55

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Duke Power Company (the licensee) dated February 21, 1978, 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 application, 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. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

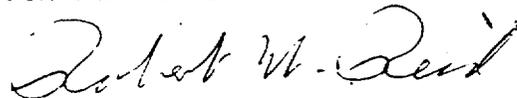
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B of Facility Operating License No. DPR-55 is hereby amended to read as follows:

3.B Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 68 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 19, 1979

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 71 TO DPR-38

AMENDMENT NO. 71 TO DPR-47

AMENDMENT NO. 68 TO DPR-55

DOCKETS NOS. 50-269, 50-270 AND 50-287

Revise Appendix A as follows:

Remove the following pages and insert revised identically numbered pages:

3.1-3

3.1-3a

3.1-4 - 3.1-6

3.1-7

3.1-7c

Changes on the revised pages are indicated by marginal lines.

3.1.2 Pressurization, Heatup, and Cooldown Limitation

Specification

3.1.2.1 The reactor coolant pressure and the system heatup and cooldown rates (with the exception of the pressurizer) shall be limited as follows:

Heatup:

Heatup rates and allowable combinations of pressure and temperatures shall be limited in accordance with Figure 3.1.2-1A Unit 1
3.1.2-1B Unit 2
3.1.2-1C Unit 3

Cooldown:

Cooldown rates and allowable combinations of pressure and temperature shall be limited in accordance with Figure 3.1.2-2A Unit 1
3.1.2-2B Unit 2
3.1.2-2C Unit 3

3.1.2.2 Leak tests required by Specification 4.3 and ASME Section XI shall be limited to the heatup and cooldown rates and allowable combinations of pressure and temperature provided in Figure 3.1.2-3A Unit 1
3.1.2-3B Unit 2
3.1.2-3C Unit 3

3.1.2.3 For thermal steady state system hydro tests required by ASME Section XI the system may be pressurized to the limits set forth in Specification 2.2 and 3.1.2.2.

3.1.2.4 The secondary side of the steam generator shall not be pressurized above 237 psig if the temperature of the vessel shell is below 110°F.

3.1.2.5 The pressurizer heatup and cooldown rates shall not exceed 100°F/hr. The spray shall not be used if the temperature difference between the pressurizer and the spray fluid is greater than 410°F.

3.1.2.6 Prior to exceeding six (Unit 1)
four (Unit 2)
four (Unit 3)

effective full power years of operation.

Figures 3.1.2-1A (Unit 1), 3.1.2-2A (Unit 1)
3.1.2-1B (Unit 2), 3.1.2-2B (Unit 2)
3.1.2-1C (Unit 3), 3.1.2-2C (Unit 3)

and 3.1.2-3A (Unit 1)
3.1.2-3B (Unit 2)
3.1.2-3C (Unit 3)

and Technical Specification 3.1.2.1, 3.1.2.2 and 3.1.2.3 shall be updated for the next service period in accordance with 10 CFR 50, Appendix G, Section V.B.

3.1.2.7 The updated proposed technical specification referred to in 3.1.2.6 shall be submitted for NRC review at least 90 days prior to the end of the service period for Units 2 and 3.

For Unit 1, the request for operation beyond the 6 EFPY shall be submitted six months prior to the end of the six year period.

Bases - Units 1, 2 and 3

All components in the Reactor Coolant System are designed to withstand the effects of cyclic loads due to system temperature and pressure changes. These cyclic loads are introduced by normal load transients, reactor trips, startup and shutdown operations, and inservice leak and hydrostatic tests. The various categories of load cycles used for design purposes are provided in Table 4.8 of the FSAR.

The major components of the reactor coolant pressure boundary have been analyzed in accordance with Appendix G to 10 CFR 50. Results of this analysis, including the actual pressure-temperature limitations of the reactor coolant pressure boundary, are given in BAW-1436⁽¹⁾, BAW-1437⁽²⁾ and BAW-1438⁽³⁾.

The Figures specified in 3.1.2.1, 3.1.2.2 and 3.1.2.3 present the pressure-temperature limit curves for normal heatup, normal cooldown and hydrostatic tests respectively. The limit curves are applicable up to the indicated effective full power years of operation. These curves are adjusted by 25 psi and 10°F for possible errors in the pressure and temperature sensing instruments. The pressure limit is also adjusted for the pressure differential between the point of system pressure measurement and the limiting component for all operating reactor coolant pump combinations.

The pressure-temperature limit lines shown on the figure specified in 3.1.2-1 for reactor criticality and on the figure referred to in 3.1.2.3 for hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50 for reactor criticality and for inservice hydrostatic testing.

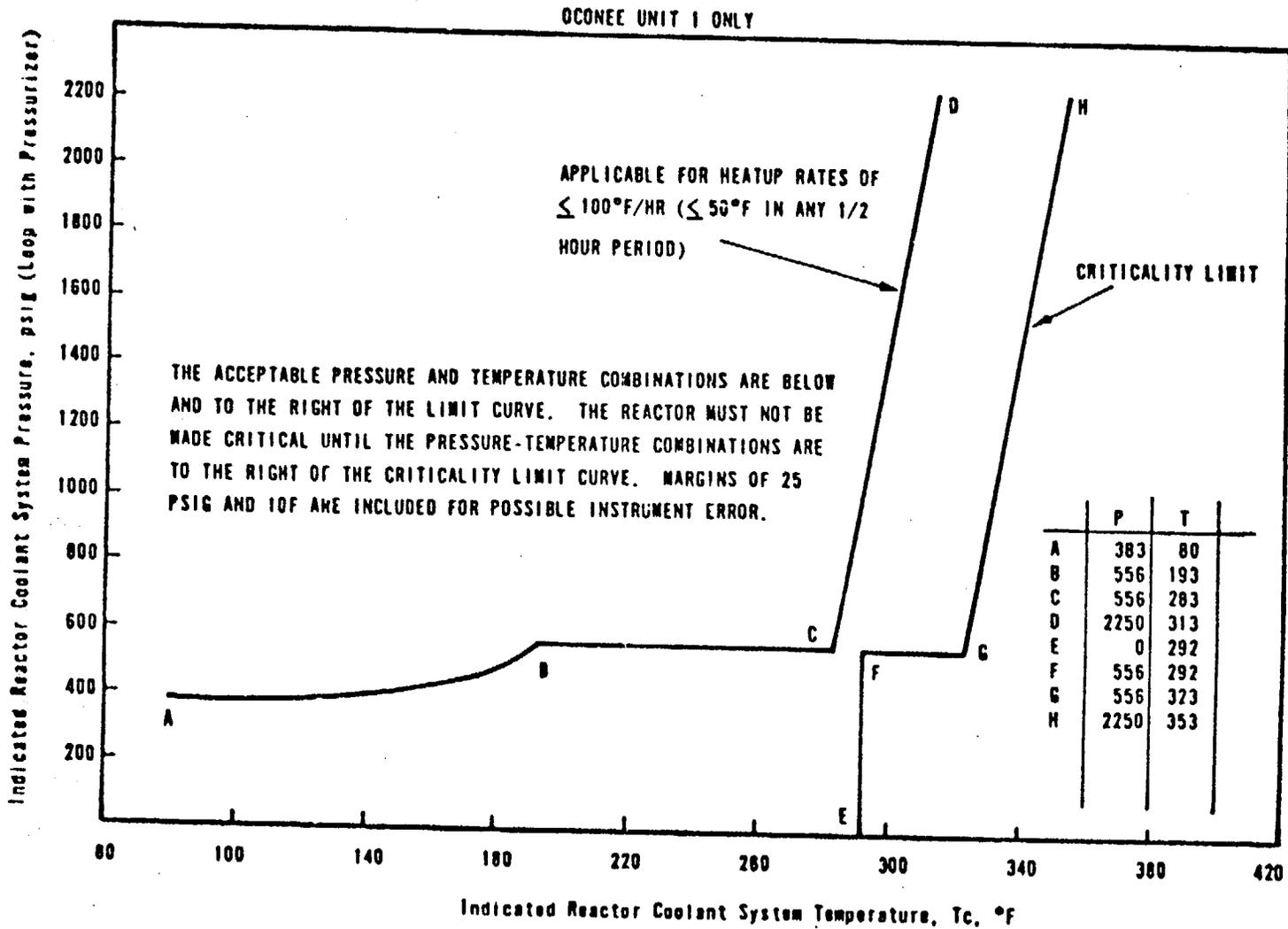
The actual shift in RT_{NDT} of the beltline region material will be established periodically during operation by removing and evaluating, in accordance with Appendix H to 10 CFR 50, reactor vessel material irradiation surveillance specimens which are installed near the inside wall of this or a similar reactor vessel in the core region, or in test reactors.

The limitation on steam generator pressure and temperature provide protection against nonductile failure of the secondary side of the steam generator. At metal temperatures lower than the RT_{NDT} of +60°F, the protection against nonductile failure is achieved by limiting the secondary coolant pressure to 20 percent of the preoperational system hydrostatic test pressure. The limitations of 110°F and 237 psig are based on the highest estimated RT_{NDT} of +40°F and the preoperational system hydrostatic test pressure of 1312 psig. The average metal temperature is assumed to be equal to or greater than the coolant temperature. The limitations include margins of 25 psi and 10°F for possible instrument error.

The spray temperature difference is imposed to maintain the thermal stresses at the pressurizer spray line nozzle below the design limit.

REFERENCES

- (1) Analysis of Capsule OCI-E from Duke Power Company Oconee Unit 1 Reactor Vessel Materials Surveillance Program, BAW-1436, September 1977.
- (2) Analysis of Capsule OCII-C from Duke Power Company Oconee Unit 2 Reactor Vessel Materials Surveillance Program, BAW-1437, May 1977.
- (3) Analysis of Capsule OCIII-A from Duke Power Company Oconee Unit 3 Reactor Vessel Materials Surveillance Program, BAW-1438, July 1977.



REACTOR COOLANT SYSTEM
 NORMAL OPERATION-HEATUP LIMITATIONS APPLICABLE FOR FIRST
 6.0 EFFECTIVE FULL POWER
 YEARS

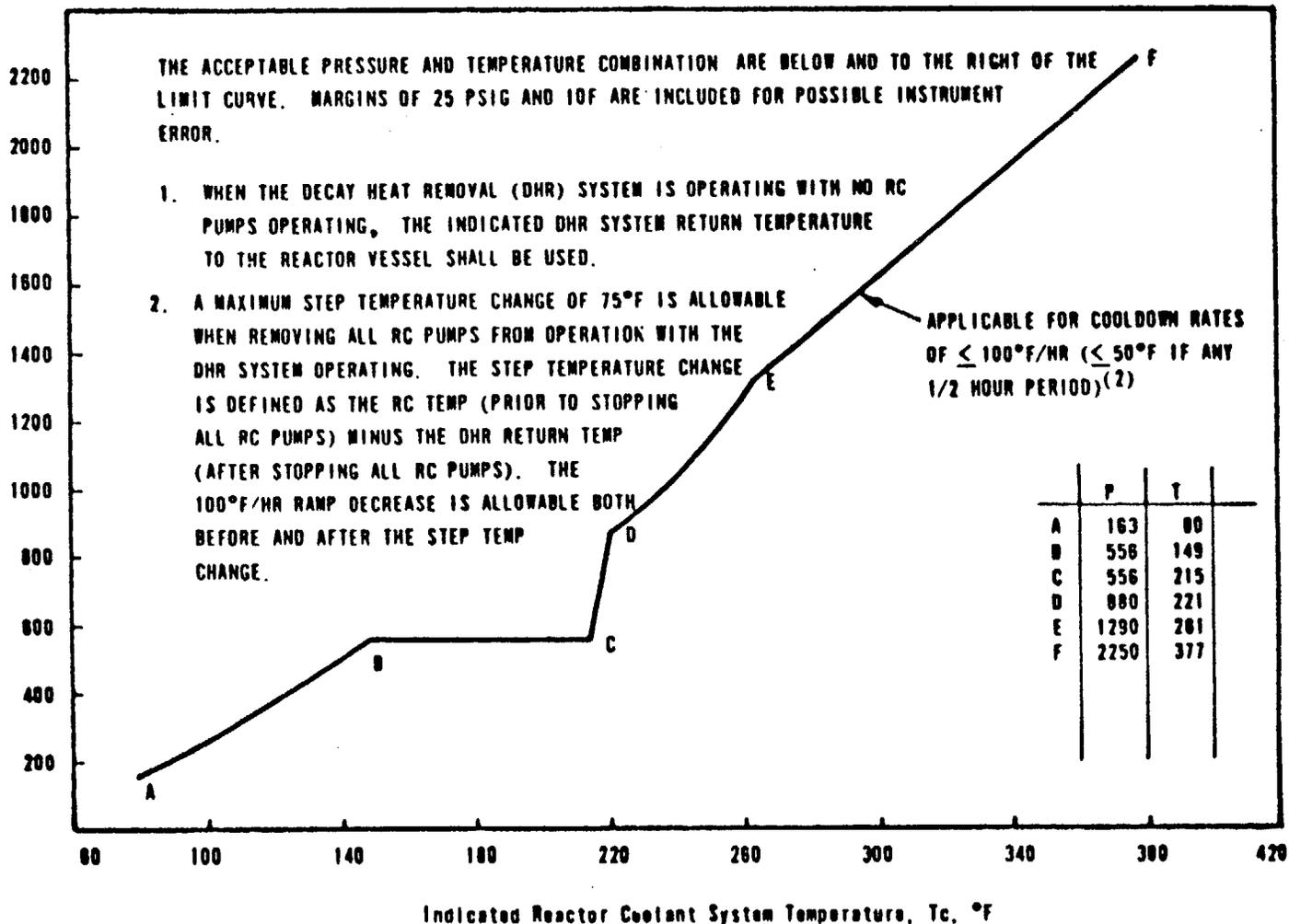


UNIT 1
 OCONEE NUCLEAR STATION

Figure 3.1.2-1A

Indicated Reactor Coolant System Pressure, Psig (Loop with Pressurizer)

OCONEE UNIT 1 ONLY

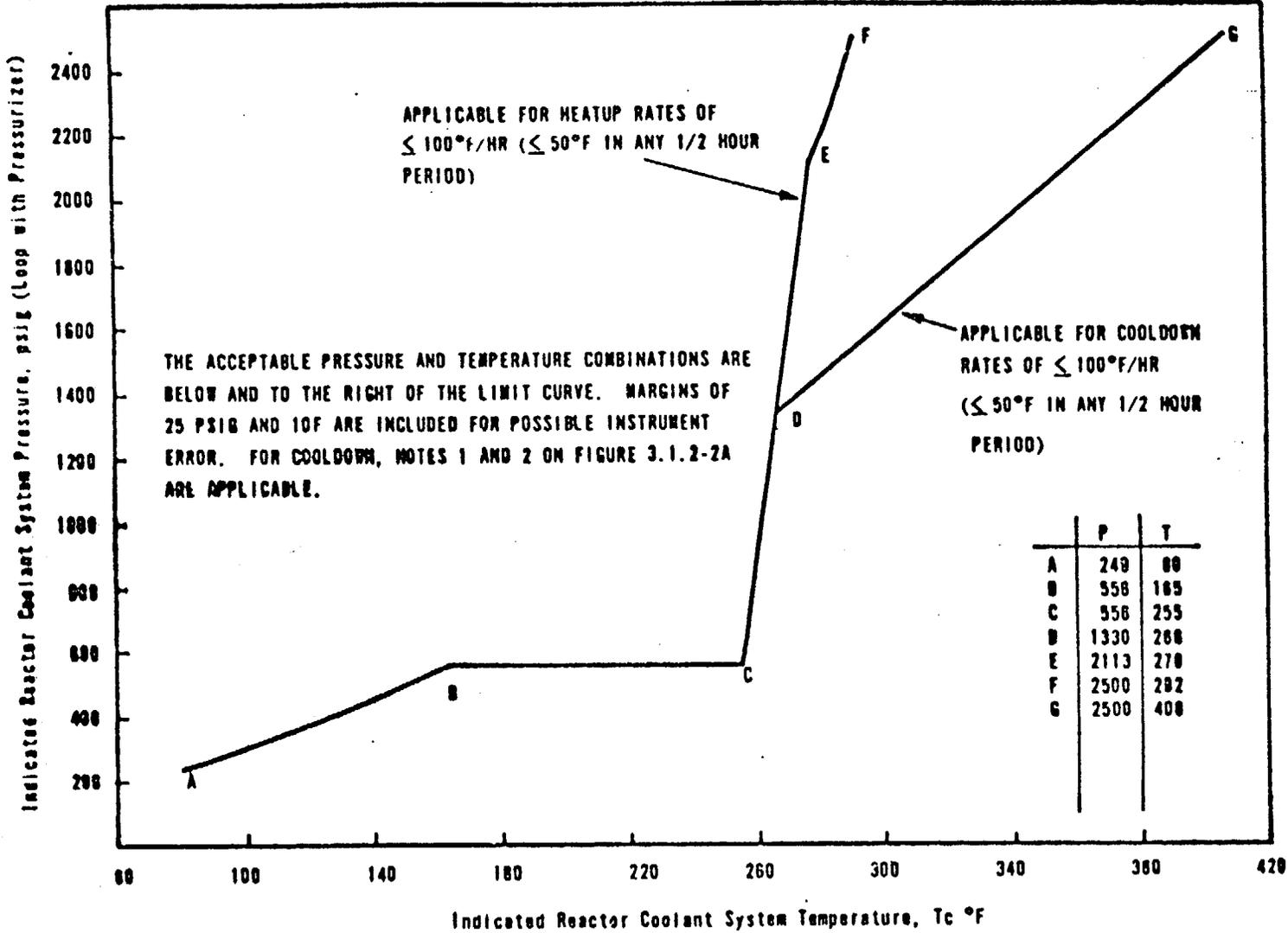


REACTOR COOLANT SYSTEM
 NORMAL OPERATION-COOLDOWN
 LIMITATIONS APPLICABLE FOR
 FIRST 6.0 EFFECTIVE FULL
 POWER YEARS UNIT 1
 OCONEE NUCLEAR STATION



Figure 3.1.2-2A

OCONEE UNIT 1 ONLY



REACTOR COOLANT SYSTEM
 INSERVICE LEAK AND HYDRO-
 STATIC TEST HEATUP AND
 COOLDOWN LIMITATION
 APPLICABLE FOR FIRST 6.0
 EFFECTIVE FULL POWER YEARS
 OCONEE NUCLEAR STATION
 UNIT 1



Figure 3.1.2-3A



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 71 TO FACILITY OPERATING LICENSE NO. DPR-38

AMENDMENT NO. 71 TO FACILITY OPERATING LICENSE NO. DPR-47

AMENDMENT NO. 68 TO FACILITY OPERATING LICENSE NO. DPR-55

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS NOS. 1, 2 AND 3

DOCKETS NOS. 50-269, 50-270 AND 50-287

Introduction

By letter dated February 21, 1978, Duke Power Company (DPC) requested revisions to the Oconee Nuclear Station, Units Nos. 1, 2 and 3 Technical Specifications to incorporate changes to the Oconee Unit No. 1 pressurization heatup and cooldown limitations. None of the atypical weld material that was reported as possibly being used in the Oconee Unit No. 3 reactor vessel welds was reported for the Oconee Unit No. 1 reactor vessel.

Discussion/Evaluation

By letter dated February 21, 1978, DPC submitted a proposed amendment to Technical Specification 3.1.2 for Oconee Unit 1 revising the pressure-temperature operating limits. The new limits were proposed for operation through 8 effective full power years (EFPY). They were based on the results of tests on Capsule OCI-E specimens recently removed from Oconee Unit 1. These test results are reported in the Babcock and Wilcox Report, BAW-1436, September 1977. Copies of this report were enclosed in DPC's February 21, 1978 letter for NRC review.

We have reviewed the BAW-1436 report. Data shows that weld metal is the limiting material. The weld metal in Capsule OCI-E is identified as Procedure Qualification (PQ) number WF-112. At a fluence of 1.5×10^{18} n/cm² it showed an increase in RT_{NDT}⁽¹⁾ of 124°F. This report also includes fluence calculations based on data from dosimeters removed from the reactor vessel with Capsule OCI-E. The maximum fluence ($E > 1$ mev) on the vessel wall at the one-quarter thickness (1/4T) location after 10 EFPY is calculated to be 3.2×10^{18} n/cm². We conclude that the mechanical properties data and the fluence values reported are acceptable.

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(1) RT_{NDT} is the symbol for reference temperature. The reference temperature is the greater of the nil ductility temperature or 60°F less than the temperature at which 50 ft-lbs Charpy energy exists in a given material.

In a letter dated August 31, 1977, DPC submitted information to NRC on Oconee Unit 1 reactor vessel materials. This letter lists six different weld metals used in the vessel beltline region: WF-25, SA-1073, SA-1135, SA-1229, SA-1430, SA-1493, and SA-1585. All of these welds are estimated to receive the maximum fluence on the vessel wall. Also, we note that the surveillance weld, WF-112, is not identical to any of these welds; i.e., it was not made from the same weld wire and flux. Therefore, it is prudent to employ the upper limit damage predictions of Regulatory Guide 1.99, Revision 1, to establish the changes in RT_{NDT} used in calculating the pressure-temperature operating limits. The operating limits submitted by DPC are calculated for an RT_{NDT} shift of 165°F at the end of the operating period. We calculate by maintaining the RT_{NDT} shift at 165°F, but using the Regulatory Guide to predict radiation damage and assuming an initial RT_{NDT} of 200°F, that the resulting fluence will be 1.9×10^{18} n/cm². The reactor vessel wall at 1/4T location is expected to reach this fluence level in 6 EFPY.

We conclude that the proposed pressure-temperature operating limits and changes to Technical Specification 3.1.2 are acceptable but only through 6 EFPY instead of 8 EFPY as proposed by DPC. DPC has agreed to this change. For this operating period the proposed pressure-temperature operating limits are in accordance with the fracture toughness requirements of Appendix G, 10 CFR Part 50. Compliance with Appendix G in establishing safe operating limitations will ensure adequate safety margins during operation, testing, maintenance and postulated accident conditions and constitute an acceptable basis for satisfying the requirements of NRC General Design Criterion 31, Appendix A, 10 CFR Part 50.

Environmental Consideration

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do

not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: March 19, 1979

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKETS NOS. 50-269, 50-270 AND 50-287DUKE POWER COMPANYNOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY
OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 71 , 71 , and 68 to Facility Operating Licenses Nos. DPR-38, DPR-47 and DPR-55, respectively, issued to Duke Power Company for operation of the Oconee Nuclear Station, Units Nos. 1, 2 and 3, located in Oconee County, South Carolina. The amendments are effective as of the date of issuance.

These amendments revise the Technical Specifications to incorporate changes to the Oconee Unit No. 1 pressurization, heatup and cooldown limitations.

The application for the amendments complies 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. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

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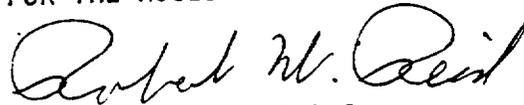
- 2 -

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

For further details with respect to this action, see (1) the application for amendments dated February 21, 1978, (2) Amendments Nos. 71, 71, and 68 to Licenses Nos. DPR-38, DPR-47 and DPR-55, respectively, and (3) the Commission's related Safety Evaluation. All of these items 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 South Spring Street, Walhalla, South Carolina. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 19th day of March 1979.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors