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

April 25, 1990

Posted
Amdt. 183 to DPR-47

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

SUBJECT: ISSUANCE OF AMENDMENTS NOS. 183, 183 AND 180 TO FACILITY OPERATING LICENSES DPR-38, DPR-47, and DPR-55 - OCONEE NUCLEAR STATION, UNITS 1, 2 AND 3 (TACs 66433, 66434, 66435)

The Nuclear Regulatory Commission has issued the enclosed Amendments Nos. 180, 180and 183 to Facility Operating Licenses Nos. DPR-38, DPR-47 and DPR-55 for the Oconee Nuclear Station, Units 1, 2 and 3. These amendments consist of changes to the Technical Specifications (TSs) in response to your request dated August 14, 1987, as supplemented April 22, 1988 and January 23, 1990.

The amendments revise TS 3.4.4 to raise the minimum upper surge tank (UST) level from 5 feet to 6 feet. The level setpoint of 6 feet includes an allowance for instrument error. The amendments also revise the basis to TS 3.4.

A copy of our Safety Evaluation is also enclosed. Notice of issuance of the enclosed amendments will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/S/
Leonard A. Wiens, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 183 to DPR-38
2. Amendment No. 183 to DPR-47
3. Amendment No. 180 to DPR-55
4. Safety Evaluation

cc w/enclosures:
See next page

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Mr. H. B. Tucker
Duke Power Company

Oconee Nuclear Station
Units Nos. 1, 2 and 3

cc:
Mr. A. V. Carr, Esq.
Duke Power Company
P. O. Box 33189
422 South Church Street
Charlotte, North Carolina 28242

J. Michael McGarry, III, Esq.
Bishop, Cook, Purcell & Reynolds
1400 L Street, N.W.
Washington, D.C. 20005

Mr. Robert B. Borsum
Babcock & Wilcox
Nuclear Power Division
Suite 525
1700 Rockville Pike
Rockville, Maryland 20852

Manager, LIS
NUS Corporation
2536 Countryside Boulevard
Clearwater, Florida 34623-1693

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
Route 2, Box 610
Seneca, South Carolina 29678

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street, N.W., Suite 2900
Atlanta, Georgia 30323

Mr. Heyward G. Shealy, Chief
Bureau of Radiological Health
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

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

County Supervisor of Oconee County
Walhalla, South Carolina 29621

Mr. Paul Guill
Duke Power Company
Post Office Box 33189
422 South Church Street
Charlotte, North Carolina 28242

Mr. Alan R. Herdt, Chief
Project Branch #3
U.S. Nuclear Regulatory Commission
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Ms. Karen E. Long
Assistant Attorney General
N. C. Department of Justice
P.O. Box 629
Raleigh, North Carolina 27602

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

DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 183
License No. DPR-38

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Oconee Nuclear Station, Unit 1 (the facility) Facility Operating License No. DPR-38 filed by the Duke Power Company (the licensee) dated August 14, 1987, as supplemented April 22, 1988 and January 23, 1990, 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 set forth in 10 CFR Chapter I;

   D. The issuance of this license 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 hereby amended by page 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:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 183, 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 its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Daniel Hood

for David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: April 25, 1990

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

DUKE POWER COMPANY

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 183
License No. DPR-47

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Oconee Nuclear Station, Unit 2 (the facility) Facility Operating License No. DPR-47 filed by the Duke Power Company (the licensee) dated August 14, 1987, as supplemented April 22, 1988, and January 23, 1990, 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 set forth in 10 CFR Chapter I;

   D. The issuance of this license 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 hereby amended by page 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:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 183, 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 its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Darl Hood

for David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: April 25, 1990

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

DUKE POWER COMPANY

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 180
License No. DPR-55

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Oconee Nuclear Station, Unit 3 (the facility) Facility Operating License No. DPR-55 filed by the Duke Power Company (the licensee) dated August 14, 1987, as supplemented April 22, 1988, and January 23, 1990, 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 set forth in 10 CFR Chapter I;

   D. The issuance of this license 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 hereby amended by page 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:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 180 , 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 its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Earl Hoot for

David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: April 25, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 183

FACILITY OPERATING LICENSE NO. DPR-38

DOCKET NO. 50-269

AND

TO LICENSE AMENDMENT NO. 183

FACILITY OPERATING LICENSE NO. DPR-47

DOCKET NO. 50-270

AND

TO LICENSE AMENDMENT NO. 180

FACILITY OPERATING LICENSE NO. DPR-55

DOCKET NO. 50-287

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change.

Remove Pages	Insert Pages
3.4-2	3.4-2
3.4-3	3.4-3
3.4-4	3.4-4

3.4.3 The 16 main safety relief valves shall be operable.

3.4.4 A minimum of 72,000 gallons of water per operating unit shall be available in the upper surge tank, condensate storage tank, and hotwell. A minimum of 6 ft. (= 30,000 Gal.) shall be available in the upper surge tank.

3.4.5 Emergency Condenser Cooling Water (ECCW) System

a. The RCS shall not be heated above 250°F unless the ECCW System is operable.

b. If the ECCW System becomes inoperable during operation above 250°F, and the system is not restored to operable status in seven days, then the unit shall be brought to hot shutdown within an additional 12 hours and below 250°F in another 12 hours.

3.4.6 The controls of the emergency feedwater system shall be independent of the Integrated Control System.

Bases

The Main Feedwater System and the Turbine Bypass System are normally used for decay heat removal and cooldown above 250°F. Feedwater makeup is supplied by operation of a hotwell pump, condensate booster pump, and a main feedwater pump.

Operability of the Emergency Feedwater System (EFW) assures the capability to remove decay heat and cool down the Reactor Coolant System to the operating conditions for switch over to decay heat removal by the Decay Heat Removal System, in the event that the Main Feedwater System is inoperable. The EFW system consists of a turbine driven pump (880 gpm), two motor driven pumps (450 gpm each), and associated flow paths to the steam generators.

The decay heat and the reactor coolant pump heat following a reactor trip from 102% power, and the EFW flow rate (90°F feedwater) required to remove this heat demand are as follows:

Time	Heat Source (% of 2619 MWT)	EFW Flow Required to Match Heat Source (gpm)
2 min	5.031	797
5 min	3.46	548
10 min	3.06	485
30 min	2.49	395
1 hour	2.15	341
2 hours	1.89	299
4 hours	1.74	276

The limiting transient requiring maximum EFW flow is the loss of main feedwater with offsite power available. For this transient, a minimum EFW flow rate equivalent to 405 gpm at 1050 psig is adequate. Each of the three EFW pumps is capable of delivering this flow.

A 100% flowpath is defined as: The flowpath to either steam generator including associated valves and piping capable of being supplied by either the turbine driven pump or the associated motor driven pump.

One flow indicator or steam generator level indicator per steam generator is sufficient to provide indication of emergency feedwater flow to the steam generators and to confirm emergency feedwater system operation. In the event that at least one indicator per steam generator is not available, then the flowpath to this steam generator is considered to be inoperable.

The EFW System is designed to start automatically in the event of loss of both main feedwater pumps or low main feedwater header pressure. All automatic initiation logic and control functions are independent from the Integrated Control System (ICS).

Normally, decay heat is removed by steam relief through the turbine bypass system to the condenser. Condenser cooling water flow is provided by a siphon effect from Lake Keowee through the condenser for final heat rejection to the Keowee Hydro Plant tailrace. Decay heat removal via recirculation flowpath

may be maintained for up to 11 hours per unit, assuming the minimum amount of water in the upper surge tanks, condensate storage tank, and hotwell is available. This is based on the conservative estimate of normal makeup being 0.5% of throttle flow. Throttle flow at full load, 11,200,000 lbs/hr., was used to calculate the operation time. For decay heat removal the operation time with the volume of water specified would be considerably increased due to the reduced throttle flow.

Decay heat can also be removed from the steam generators by steam relief through the main steam safety relief valves. The total relief capacity of the 16 main steam safety relief valves is 13,105,000 lbs/hr. In this case the minimum amount of water in the upper surge tank, condensate storage tank, and hotwell is sufficient to remove decay heat and reactor coolant pump heat for 3 hours per unit at hot shutdown conditions.

A 6 foot level in the upper surge tank will ensure that 30,000 gallons of water are available to the EFW pumps from that source. The 6 foot level set-point includes an allowance for instrument error and for the depletion of inventory while switching to an alternate suction source.

REFERENCE

FSAR, Section 10.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 183TO FACILITY OPERATING LICENSE DPR-38

AMENDMENT NO. 183TO FACILITY OPERATING LICENSE DPR-47

AMENDMENT NO. 180TO FACILITY OPERATING LICENSE DPR-55

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS 1, 2 AND 3

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

1.0 INTRODUCTION

By letter dated August 14, 1987, and supplemental correspondence dated April 22, 1988, and January 23, 1990, Duke Power Company (the licensee) proposed amendments to the operating licenses for Oconee Nuclear Station (ONS), Units 1, 2 and 3, which would revise Technical Specification (TS) 3.4.4. The TS revision would change the minimum indicated level required to be available in the upper surge tanks from 5 feet to 6 feet. The change was required to account for instrument error and to ensure adequate Emergency Feedwater (EFW) supply availability while switching to an alternate source. Some changes were also proposed to the Bases of TS 3.4. The changes are applicable to all three units.

2.0 EVALUATION

The EFW system for the ONS, Units 1, 2 and 3, is designed to supply sufficient feedwater following a reactor trip at power to enable the Reactor Coolant System to cool down to conditions at which the Decay Heat Removal System may be operated. The system utilizes two upper surge tanks (UST) on each unit to provide the primary source of water for the EFW pumps. The two upper surge tanks are cross-connected and supply sufficient inventory to provide the required minimum EFW flow for maintaining hot shutdown for at least 67 minutes under conservative conditions. This inventory corresponds to a tank volume of 30,000 gallons, equivalent to a UST level of 5 feet. The UST level of 5 feet is based on tank geometry only and does not consider the effects of possible instrument error.

Duke Power Company performed an analysis to determine the adequacy of the UST level of 5 feet. As a result of this analysis, it was determined that a maximum UST level instrumentation error of 9 inches could be expected. The licensee's evaluation showed that an indicated UST level of 6 feet was required to ensure that an actual UST volume of 30,000 gallons was present. This one foot increase included the allowance for instrument error plus an

allowance for depletion of EFW inventory while switching to an alternate water source. The licensee's analysis indicates that the allowance of 9 inches conservatively bounds the uncertainty associated with each of the various UST level indications. Duke Power Company requested changes to ONS TS 3.4.4 to reflect this change in UST level.

Additionally, changes to the table of EFW flow demand in the Bases of TS 3.4.4 were included to reflect revised calculations used to determine the decay heat, reactor coolant pump heat, and required EFW flow following a reactor trip from 102 percent power. The changes in the decay heat calculations incorporate a realistic assumption of 440 effective full power days per cycle instead of the previously assumed infinite operation, actual reactor coolant pump heat input instead of nameplate power and conservative assumptions of delayed neutron power. The revised values bound any Oconee core decay heat level and do not affect the capability to achieve and maintain hot shutdown under the most conservative conditions with only the EFW pumps operating.

Based on its review of the licensee's request, the NRC staff agrees with the licensee's conclusions that the changes have no adverse impact on the design or operation of the station and would not pose an undue risk to public health and safety. The requirement to maintain a higher minimum indicated UST level will provide improvement in the availability and reliability of the water sources for EFW operation for decay heat removal. Therefore, the changes are acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve changes in requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration, and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

4.0 CONCLUSION

The Commission's proposed determination that the amendments involve no significant hazards consideration was published in the Federal Register (54 FR 31105) on July 26, 1989. Subsequent clarifying information submitted by the licensee on January 23, 1990, did not change our proposed finding. The Commission consulted with the State of South Carolina. No public comments were received, and the State of South Carolina did not have any comments.

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) 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.

Principal Contributor: L. Wiens, PDII-3/DRP-I/II
L. Wert, Resident Inspector, Oconee

Dated: April 25, 1990