April 7, 1987

DCR 016

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

Mr. Hal B. Tucker
Vice President - Nuclear Production
Duke Power Company
P. O. Box 33189
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

SUBJECT: EMERGENCY TECHNICAL SPECIFICATION CHANGE - LOW PRESSURE INJECTION AND REACTOR BUILDING COOLING UNIT COOLERS

Re: Oconee Nuclear Station, Units 1, 2 and 3

By letter dated April 6, 1987, you requested an emergency Technical Specification (TS) change which would establish new interim maximum allowable power levels and change the reactor protection system (RPS) high flux trip setpoints for Oconee Units 1 and 2. The proposed revision also specifies a Limiting Condition of Operation (LCO) for the third non-engineered safeguards low pressure injection (LPI) pump for Units 1 and 2.

The present TSs require two LPI and three reactor building cooling unit (RBCU) trains to be operable and perform their intended safety function when the Units are at full power. The proposed TSs will allow the Units to operate at reduced power with the LPI and RBCU coolers having degraded performance capabilities. The coolers' reduced heat transfer capability is due to fouling. Therefore, TS pages 2.3-7, 3.3-5, 3.3-6 and 3.3-7 would be amended.

We have reviewed your evaluation and justification provided in your April 6, 1987 submittal and find them acceptable. This letter confirms the verbal granting of a temporary waiver of compliance, as discussed with you on April 3, 1987, to establish new interim maximum allowable power levels, change the RPS high flux trip setpoints and specify an LCO for the third LPI pump, as indicated in the enclosed TS pages. This temporary waiver of compliance will be in effect until midnight April 8, 1987 while we complete the processing of your amendment request.

Sincerely,

John F. Stolz, Director
PWR Project Directorate #6
Division of PWR Licensing-B

Enclosures:
TS pages 2.3-7,
3.3-5, 3.3-6 and 3.3-7

cc w/enclosures:
See next page

JPartlow
Distribution:
HPastis
RIngram
BGrimes
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FMiraglia
NThompson
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PWR#6	PWR#6	PWR#6	PWR#6
RIngram	HPastis;eh	GEdison	JStolz
4/7/87	4/7/87	4/7/87	4/7/87

Mr. H. B. Tucker
Duke Power Company

Oconee Nuclear Station
Units Nos. 1, 2 and 3

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Honorable James M. Phinney
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Walhalla, South Carolina 29621

TABLE 2.3-1

Reactor Protective System Trip Setting Limits

	RPS Trip		RPS Trip Setpoint	Shutdown Bypass
1.	Nuclear Overpower		105.5% Rated Power (4)(5)	5.0% Rated Power (1)
2.	Flux/Flow/Imbalance		1.07	Bypassed
3.	Pump Monitors	a.	> 0% Rated Power loss of two pumps in one reactor coolant loop	Bypassed
		b.	> 55% Rated Power loss of two pumps	
		c.	> 0% Rated Power loss of one or two pumps during two pump operation	
4.	High Reactor Coolant System Pressure		2300 psig	1720(2)
5.	Low Reactor Coolant System Pressure		1800 psig	Bypassed
6.	Variable Low Reactor Coolant System Pressure		P (psig) = (11.14 T_{out} - 4706)(3)	Bypassed
7.	High Reactor Coolant Temperature		618°F	618°F
8.	High Reactor Building Pressure		4 psig	4 psig

(1) Administratively controlled reduction set only during reactor shutdown.

(2) Automatically set when other segments of the RPS are bypassed.

(3) T_{out} is in degrees Fahrenheit (°F).

(4) Until the 1A LPI cooler is cleaned, tested and evaluated for full power operation or until EOC 10, the Setpoint for Unit 1 is 91.5% rated power.

(5) Until the 2A LPI cooler is cleaned, tested and evaluated for full power operation or until midnight of April 22, 1987, the Unit 2 setpoint is 81.7% rated power.

3.3.7 Low Pressure Service Water (LPSW):

a. Prior to initiating maintenance on any component of the LPSW system, the redundant component shall be tested to assure operability.

b. When the RCS, with fuel in the core, is in a condition with pressure equal to or greater than 350 psig or temperature equal to or greater than 250°F:

(1) Two LPSW pumps for the shared Unit 1, 2 LPSW system and two LPSW pumps for the Unit 3 LPSW system shall be operable with valves LPSW-108, 2LPSW-108, and 3LPSW-108 locked open.

(2) Tests or maintenance shall be allowed on any component of the LPSW system provided the redundant train of the LPSW system is operable. If the LPSW system is not restored to meet the requirements of Specification 3.3.7.b(1) above within 24 hours, the reactor shall be placed in a hot shutdown condition with 12 hours. If the requirements of Specification 3.3.7.b(1) are not met within 24 hours following hot shutdown, the reactor shall be placed in a condition with RCS pressure below 350 psig and RCS temperature below 250° F within an additional 24 hours.

3.3.8 For Unit 1 until the 1A LPI cooler is cleaned, tested and evaluated for full power operation or until EOC 10:

a. The maximum allowable Power level shall be 91.5% rated power.

b. In addition to the requirements of Specification 3.3.2, the remaining non-ES LPI pump, capable of taking suction from the reactor building emergency sump and discharging into the RCS, shall be operable.

(1) The remaining non-ES LPI pump may be inoperable for a period of 24 hours. If the non-ES LPI pump is not restored to operable status within 24 hours, the reactor shall be placed in a hot shutdown condition within an additional 12 hours. If the requirements of 3.3.8(b) are not met within 24 hours following hot shutdown, the reactor shall be placed in a condition with RCS pressure below 350 psig and RCS temperature below 250°F within an additional 24 hours.

3.3.9 For Unit 2 until the 2A LPI cooler is cleaned, tested and evaluated for full power operation or until midnight of April 22, 1987:

a. If lake water temperature is equal to or less than 55°F, the maximum allowable power level shall be 81.7% rated power.

b. In addition to the requirement of Specification 3.3.2, the remaining non-ES LPI Pump, capable of taking suction from the reactor building emergency sump and discharging into the RCS, shall be operable.

(1) The remaining non-ES LPI pump may be inoperable for a period of 24 hours. If the non-ES LPI pump is not restored to operable status within 24 hours, the reactor shall be placed in a hot shutdown condition within an additional 12 hours. If the requirements of 3.3.9(c) are not met within 24 hours following hot shutdown, the reactor shall be placed in a condition with RCS pressure below 350 psig and RCS temperature below 250°F within additional 24 hours.

Bases

Specification 3.3 assures that, for whatever condition the reactor coolant system is in, adequate engineered safety feature equipment is operable.

For operation up to 60% FP, two high pressure injection pumps are specified. Also, two low pressure injection pumps and both core flood tanks are required. In the event that the need for emergency core cooling should occur, functioning of one high pressure injection pump, one low pressure injection pump, and both core flood tanks will protect the core, and in the event of a main coolant loop severence, limit the peak clad temperature to less than 2,200°F and the metal-water reaction to that representing less than 1 percent of the clad.(1) Both core flooding tanks are required as a single core flood tank has insufficient inventory to reflood the core.

The requirement to have three HPI pumps and two HPI flowpaths operable during power operation above 60% FP is based on considerations of potential small breaks at the reactor coolant pump discharge piping for which two HPI trains (two pumps and two flow paths) are required to assure adequate core cooling.(2) The analysis of these breaks indicates that for operation at or below 60% FP only a single train of the HPI system is needed to provide the necessary core cooling.

The borated water storage tanks are used for two purposes:

(a) As a supply of borated water for accident conditions.

(b) As a supply of borated water for flooding the fuel transfer canal during refueling operation.(3)

Three hundred and fifty thousand (350,000) gallons of borated water (a level of 46 feet in the BWST) are required to supply emergency core cooling and reactor building spray in the event of a loss-of-core cooling accident. This amount fulfills requirements for emergency core cooling. The borated water storage tank capacity of 388,000 gallons is based on refueling volume requirements. Heaters maintain the borated water supply at a temperature above 50°F to lessen the potential for thermal shock of the reactor vessel during high pressure injection system operation. The boron concentration is set at the amount of boron required to maintain the core 1 percent subcritical at 70°F without any control rods in the core. The minimum value specified in the tanks is 1835* ppm boron.

It has been shown for the worst design basis loss-of-coolant accident (a 14.1 ft^2 hot leg break) that the Reactor Building design pressure will not be exceeded with one spray and two coolers operable. (4) Therefore, a maintenance period of seven days is acceptable for one Reactor Building cooling fan and its associated cooling unit provided two Reactor Building spray systems are operable for seven days or one Reactor Building spray system provided all three Reactor Building cooling units are operable.

Three low pressure service water pumps serve Oconee Units 1 and 2 and two low pressure service water pumps serve Oconee Unit 3. There is a manual cross-connection on the supply headers for Unit 1, 2, and 3. One low pressure service water pump per unit is required for normal operation. The normal operating requirements are greater than the emergency requirements following a loss-of-coolant accident.

Prior to initiating maintenance on any of the components, the redundant component(s) shall be tested to assure operability. Operability shall be based on the results of testing as required by Technical Specification 4.5. The maintenance period of up to 24 hours is acceptable if the operability of equipment redundant to that removed from service is demonstrated within 24 hours prior to removal. The 24 hour period prior to removal is adequate to permit efficient scheduling of manpower and equipment testing while ensuring that the testing is performed directly prior to removal. The basis of acceptability is the low likelihood of failure within a clearly defined 48 hours following redundant component testing.

REFERENCES

(1) ECCS Analysis of B&W's 177-FA Lowered-Loop NSS, BAW-10103, Babcock & Wilcox, Lynchburg, Virginia, June 1975.

(2) Duke Power Company to NRC letter, July 14, 1978, "Proposed Modifications of High Pressure Injection System".

(3) FSAR, Section 9.3.3.2

(4) FSAR, Section 15.14.5

* 2010 ppm boron for Unit 3, Cycle 10 only.