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POWER BUILDING
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WILLIAM O. PARKER, JR.
VICE PRESIDENT
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TELEPHONE: AREA 704
373-4083

February 24, 1976

Mr. Benard C. Rusche
Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. R. A. Purple

Re: Oconee Unit 1
Docket No. 50-269

Dear Sir:

Discussions with members of your staff concerning the licensing of the Oconee Unit 1, Cycle 3 reload have revealed several items of concern which have not yet been resolved. The following discussion is provided to permit early resolution of these concerns:

1. Mr. R. A. Purple's letter dated October 15, 1975 indicated concern for, and requested a discussion of, the possibility of a water hammer in the Low Pressure Injection (LPI) System and recommended that valves LP-21 and LP-22 be changed to normally open valves. In our letter dated October 31, 1975, it was stated that the LPI system is normally full of water and that the possibility of a water hammer is extremely remote. However, until an analysis of the LPI system can be performed to demonstrate that the possibility of a water hammer does not exist, the Oconee Unit 1 operating procedures will be revised to require that valves LP-21 and LP-22 be normally open.

2. Mr. R. A. Purple's letter dated October 15, 1975 stated that a Technical Specification requiring that the core flood tank vent valves have power removed and breakers locked open would be required. In our letter dated October 31, 1975, it was noted that each core flood tank has a manually operated needle throttling valve in series with the electrically operated vent valve. The manual valve is required to be in a throttled condition by station operating procedures and has been shown to be effective in limiting the rate of decrease of pressure in the core flood tanks. Therefore, pursuant to the provisions of 10 CFR 50, §50.90, it is requested that the attached Technical Specification be approved which will assure that the core flood tank performance is not adversely

affected by a postulated depressurization of the tank. This specification requires that either the electrically operated core flood tank vent valves CF-5 and CF-6 be closed and the breakers locked open and tagged except when adjusting core flood tank pressure; or prior to increasing core flood tank pressure above 800 psig, it shall be verified that the core flood tank manual vent valves CF-15 and CF-16 are positioned such that the core flood tanks cannot depressurize at a rate greater than 50 psig/min.

3. Mr. R. A. Purple's letter dated February 17, 1976 has stated that the proposed modification to install two drain lines from the decay heat drop line to the Reactor Building sump would be a satisfactory method to achieve boron dilution in the core following a postulated loss-of-coolant accident. However, it is the Commission's belief that positive indication that a minimum of 40 gpm is actually flowing in the drain line should be available to the operator.

   In our April 16, 1975 submittal, an analysis was presented concerning the possibility of boron precipitation resulting from a spectrum of reactor coolant system breaks. It can be concluded from this analysis that the cold leg and core flood line breaks are the only cases in which the potential for a significant increase in boron concentration in the core exists. In our letter dated December 18, 1975, a description was provided of a proposed modification which would eliminate the possibility of boron precipitation in the long term following a loss of coolant accident. This modification, as designed for Oconee Unit 1, consists of a three-inch drain line to be installed above valve LP-1 and an eight-inch drain line to be installed below LP-2. The eight-inch drain line was sized to allow its double function of allowing for boron dilution following a LOCA and providing an alternate flow path for decay heat removal during a maintenance outage.

   The two drain lines will provide a redundant, single failure proof, gravity drain from the reactor coolant hot leg to the Reactor Building sump. Since the center lines of the hot and cold legs are the same, and the diameters are 36" and 28" respectively, the bottom of the hot leg is four inches below the bottom of the cold leg. This means that for any cold leg or core flood line break, the water level in the reactor vessel can be no lower than the bottom of the cold leg. This will assure that at least four inches of water will be in the hot leg and a minimum of 40 gpm will flow through the drain lines. Thus, flow will exist through the core, and the possibility of boron precipitation will not exist. In the case of a hot leg break, the reactor vessel water level will be at the bottom of the hot leg, and, depending upon the break location, flow in the decay heat drop line may or may not exist. However, for the hot leg break, no dilution flow is necessary since flow through the core is assured by forced circulation.

As can be seen from the above discussion, there is no single failure which could occur which will create the potential for boron precipitation. Once the boron dilution drain lines valves are opened (indication provided in the control room) the system becomes a passive system, and, due to its gravity nature, it is assured that a minimum of 40 gpm will flow through the core. Positive indication that 40 gpm is actually flowing through the drain lines is not practical, particularly in the eight-inch drain line, and, depending on the break location, would provide no useful information. It is our opinion that this indication should not be required.

In order to test the design and installation of the drain lines, a preoperational test will be performed prior to reactor startup. The test will be performed by lowering the reactor vessel water level approximately to the bottom of the reactor coolant cold leg. Low pressure injection flow will be stopped to assure no flow in the LPI decay heat drop line at the beginning of the test. The isolation valves on the three-inch drain line will be opened, and the flow through the line will be collected to verify that a minimum of 40 gpm exists. Flow through the eight-inch drain line will be demonstrated during decay heat removal. Since this line is significantly larger than the three-inch line and the elevation driving head is larger, flow through this line will not be specifically measured.

4. Concern has been raised by members of your staff that the actual primary system flow is sufficiently above the 107.6 percent of design flow which was used in calculations in the "Oconee Unit 1, Cycle 3 Reload Report" BAW 1427. Consequently, a measurement of primary system flow will be made at or near 100% full power on Oconee 1, Cycle 3 to verify that adequate flow exists.

It is considered that the above discussions and commitments will provide the basis for resolution of outstanding items in the licensing of Oconee Unit 1, Cycle 3.

Very truly yours,

William O. Parker, Jr.

MST:mmb

WILLIAM O. PARKER, JR., being duly sworn, states that he is Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this request for amendment of the Oconee Nuclear Station Technical Specifications, Appendix A to Facility Operating Licenses DPR-38, DPR-47 and DPR-55; and that all statements and matters set forth therein are true and correct to the best of his knowledge.

William O. Parker, Jr., Vice President

ATTEST

John C. Goodman, Jr.
Assistant Secretary
(Seal)

Subscribed and sworn to before me this 24th day of February 1976.

Notary Public
(Notarial Seal)

My Commission Expires:

October 29, 1977

3.3.2 In addition to 3.3.1 above, the following ECCS equipment shall be operable when the reactor coolant system is above 350°F and irradiated fuel is in the core:

(a) Two high pressure injection pumps shall be maintained operable to provide redundant and independent flow paths.

(b) Engineered Safety Feature valves and interlocks associated with 3.3.2a above shall be operable.

3.3.3 In addition to 3.3.1 and 3.3.2 above, the following ECCS equipment shall be operable when the reactor coolant system is above 800 psig:

(a) The two core flooding tanks shall each contain a minimum of 13 ± .44 ft. (1040 ± 30 ft^3) of borated water to 600 ± 25 psig.

(b) Core flooding tank boron concentration shall not be less than 1,800 ppm boron.

(c) The electrically-operated discharge valves from the core flood tanks shall be open and breakers locked open and tagged.

(d) The electrically-operated core flood tank vent valves CF-5 and CF-6 shall be closed and the breakers locked open and tagged except when adjusting core flood tank pressure; or, prior to increasing reactor coolant system pressure above 800 psig it shall have been verified that the core flood tank manual vent valves CF15 and CF16 are positioned and tagged such that the core flood tanks cannot depressurize at a rate greater than 50 psig/min.

(e) One pressure instrument channel and one level instrument channel per core flood tank shall be operable.

3.3.4 The reactor shall not be made critical unless the following equipment in addition to 3.3.1, 3.3.2, and 3.3.3 is operable.

(a) The other reactor building spray pump and its associated spray nozzle header.

(b) The remaining reactor building cooling fan and associated cooling unit.

(c) Engineered Safety Feature valves and interlocks associated with 3.3.4a and 3.3.4b shall be operable.

3.3.5 Except as noted in 3.3.6 below, tests or maintenance shall be allowed during power operation on any component(s) in the high pressure injection, low pressure injection, low pressure service water, reactor building spray, reactor building cooling or penetration room ventilation systems which will not remove more than one train of each system from service. Components shall not be removed from service so that the affected system train is inoperable for more than 24 consecutive hours. If the system is not restored to meet the requirements of Specification 3.3.1, 3.3.1, 3.3.3, or 3.3.4 within 24 hours, the reactor shall be placed in a hot shutdown condition within 12 hours. If the requirements of Specification 3.3.1, 3.3.2, 3.3.3, or 3.3.4 are not met within an additional 48 hours, the reactor shall be placed in a condition below that reactor coolant system condition required in Specification 3.3.1, 3.3.2, 3.3.3, or 3.3.4 for the component degraded.