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OCT 15 1975

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

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

Gentlemen:

The enclosure to this letter identifies additional information that we require for our review of the Oconee Nuclear Station ECCS analysis.

As noted in our letter to you dated October 14, 1975, we will need to complete our evaluation of your ECCS analysis prior to issuing the license amendment you have requested that would incorporate rod withdrawal limit curves for operation of Unit 1 beyond 250 effective full-power days.

Sincerely,

Original signed by
R. A. Purple

Robert A. Purple, Chief
Operating Reactors Branch #1
Division of Reactor Licensing

Enclosure:
Request for Additional
Information

ccs: See next page

ECCS

OFFICE	RL:ORB#1	RL:ORB#1				
SURNAME	GZech:mer	RAPurple				
DATE	10/16/75	10/15/75				

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

OCT 15 1975

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

Mr. Troy B. Conner
Conner, Hadlock & Knotts
1747 Pennsylvania Avenue, NW
Washington, D. C. 20006

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

Request for Additional Information

Oconee 1, 2, 3

1. With regard to the single failure analysis, your discussion is insufficient to allow an adequate evaluation.

   a.) Confirm that your analyses considered a single failure or operator error that causes any manually controlled, electrically-operated valve to move to a position that could adversely affect the ECCS (i.e., Service Water System Valves, Building Spray System Valves, Boron Dilution Valves, etc.).

   b.) Drawing FD-102A1 shows LPI valves LP-V4A and LP-V4B to be normally closed. To allow operation of the LPI-to-LPI crossover subsequent to a CFT line break and a single active component failure, these valves must be required by Station Technical Specifications to be open, power removed, and breakers locked open.

   c.) Your evaluation on page 2 of Attachment 3 for the DH cooler inlet and outlet valves does not appear to be correct. For a CFT line break and an inadvertant closure of a valve in the unaffected low pressure injection line, the LPI-to-LPI crossover would be rendered ineffective. Station Technical Specifications must require that power be disconnected and breakers locked open to LPI motor-operated valves downstream of the LPI-to-LPI crossover (valves normally open) and that a periodic test be performed to warn of abnormal leakage of the check valves in the LPI injection lines inside containment. These changes provide further assurance that abundant core cooling is available for a CFT line break and minimize the potential for a LOCA outside containment.

d.) With regard to the failure open of a CFT vent valve, the position that this is a very low probability event is not sufficient justification of the Oconee design. Technical Specifications must require that power to these valves be disconnected and the breakers locked open.

e.) The following motor-operated valves do not appear to be addressed in Attachment 3:

HP-27	LP-17
HP-24	LP-18
HP-25	LP-21
	LP-22

Confirm that these valves could not move to a position that could adversely effect ECCS performance.

2. With regard to the discussion on submerged equipment, the analysis is insufficient to allow an adequate evaluation. Specify the scope of the study in terms of systems considered in the analysis. Confirm that post-LOCA long-term cooling requirements were considered (i.e., systems needed to limit boric acid concentration in the reactor vessel). Provide the basis for the conclusion that certain reactor building isolation valves would be closed upon ES actuation before becoming submerged. For these valves, indicate the expected time of isolation after a worst-case break location and compare to the expected time at which the water level in the sump would first reach the valve motor. Specify the height above the containment floor of each of these valves.

3. With regard to the Oconee 1 ECCS evaluation (Attachment 2);

a.) Page 2: describe the tests and provide the calculations upon which the CFT line resistance is based.

b.) Page 9 indicates that the REFLOOD code version names are different on Figures 4 and 8. If the codes are not the same, describe the differences.

c.) Figures 4 and 8: It is not obvious from these plots that flooding rates of less than 1 in/sec are not predicted. As indicated in the staff's "Minimum Requirements for ECCS Break Spectrum Submittals" dated April 25, 1975, resubmit these figures utilizing engineering graph paper to such a scale as to allow greater reading accuracy.

d.) Figure 2: Explain what is causing the distinct second reflood peak at about 60 seconds and relate to the same plot at the two-foot elevation in BAW-10103.

e.) Figure 5: Explain the drop in heat transfer coefficient at about 55 seconds (relative to BAW-10103).

f.) Explain why the hot spot shifted to the unruptured node at the 2-foot and 4-foot elevation (relative to BAW-10103).

g.) Provide the value of volumetric average fuel temperature assumed in the Oconee 1 calculations (at 18 kw/ft with 580°F sink temperature).

h.) It is not apparent that you have sufficiently specified and justified all input parameters revised for the Oconee 1 analysis. For example, no explanation was given for the changes in initial pin pressure (page 7) relative to the generic calculation in BAW-10103. Confirm that all input changes have been identified and explained.

4. It is noted that motor-operated valves LP-21, LP-22 and LP-24 from the BWST are shown normally closed. It appears that, assuming sufficient static head were available, the potential for a water hammer when ECC is injected into a dry line would be reduced considerably if these valves were normally left open. Please discuss.

5. Discuss how it was intended that the LPI-to-LPI crossover would be actuated after a CFT line break (and a failure of the diesel on the unaffected low pressure injection line)...noting that one of the crossover valve motors would also be rendered inoperable.