Regulatory File Cy.

August 8, 1975

Mr. Norman C. Moseley, Director
U. S. Nuclear Regulatory Commission
Suite 818
230 Peachtree Street, Northwest
Atlanta, Georgia 30303

Re: Oconee Nuclear Station
Docket No. 50-287

Dear Mr. Moseley:

My letter of June 27, 1975, transmitted to you Abnormal Occurrence Report AO-287/75-7, Excessive Reactor Coolant System Cooldown Rate. The following information provides additional information relating to this occurrence and associated corrective action.

As stated in AO-287/75-7, when reactor power level had decreased in the course of a routine maintenance shutdown, a minor system transient occurred, which resulted in the opening of the power-operated relief valve 3RC-66. Prior to the system transient, reactor power was being reduced from 100% FP to 15% FP in an orderly manner by the Integrated Control System. When 15% FP was reached, unit load demand was 65 MWe, and power generation was 115 MWe. This difference between unit load demand and power generation existed because the reactor was operating at its low limit of 15% FP while in automatic ICS control and could not further follow unit load demand. Meanwhile the control operator placed the turbine control station in manual, leaving the ICS in the "load tracking" mode. This led to a rapid increase in unit load demand to match the generated megawatt output. In the meantime, the main steam bypass valves opened; and when the main steam pressure decreased, the valves closed. The ICS control of feedwater flow could not follow the rapid change in unit load demand and steam pressure; consequently, feedwater flow and steam generator level oscillated, resulting in the Reactor Coolant System temperature and pressure transient.

The power operated relief valve, 3RC-66, opened when RCS pressure reached 2255 psi but failed to close when the pressure dropped below 2220 psi, although the open/closed lights in the control room did not indicate that the valve was open. Consequently, RCS pressure dropped, the reactor tripped on low pressure, and the HPI system actuated.

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[illegible] Mr. [illegible]

[illegible] 8, 1975

Although the operator closed the isolation valve, 3RC-4, immediately after the reactor trip to terminate the depressurization, the valve was reopened because of the rapidly rising pressurizer level. Valve 3RC-4 was finally closed when RC pressure reached 800 psi, terminating the pressure transient. The subsequent controlled cooldown of the Reactor Coolant System, when combined with the temperature drop during the transient, resulted in a cooldown of 101°F during the first hour when temperature was below 530°F, contrary to the provisions of Technical Specification 3.1.2.3. The transient and associated events also caused the quench tank rupture disc to blow open, Mirror insulation to be separated from the bottom nozzle of the pressurizer, and the release of approximately 1500 gallons of reactor coolant to the Reactor Building sump.

The release of reactor coolant did not cause any significant increase of radiation level in the Reactor Building, and no radioactivity was released into the environment.

As addressed in AO-287/75-7, the excessive cooldown rate associated with the transient has been evaluated and it was determined that the health and safety of the public was not affected. No other system limits were exceeded.

The failure of 3RC-66 to close and the malfunctioning of the valve position indication in the Control Room have been investigated. It has been found that the valve was stuck in the open position because of heat expansion, boric acid crystal buildup on the valve lever, rubbing of the level against the solenoid brackets, and bending of the solenoid spring bracket. The valve was repaired and reinstalled. The malfunctioning of the valve position indication was not observed when the repaired valve was reinstalled. This malfunctioning was apparently caused by the sticking of the solenoid plunger at slightly less than the full open position or by the crud buildup around the plunger operated microswitch to the open/closed lights.

Additionally, [illegible] the following corrective actions have been or will be implemented.

1. The [illegible] procedure for all Oconee units have been revised to include a change that will prevent decreasing unit load demand below 120 MWe before placing the ICS in the tracking mode. This would minimize the error between the unit load demand and generated power and thus would reduce the possibility of feedwater flow and RCS transients.

2. The Units 1 and 2 power-actuated pressurizer relief valves will be examined as soon as possible for any indication of boric acid crystal buildup.

3. To verify the proper functioning of RC-66, a test to cycle RC-66 prior to startup with a test signal corresponding to 2285 psi will be incorporated into the station operating procedures.

4. The quench tank rupture disc has been replaced, and the bottom nozzles on the pressurizer were dye penetrant tested and the Mirror insulation replaced.

5. Operating personnel have been advised of this incident with specific instructions that immediate closure of 3RC-4 is the proper corrective action for such an occurrence.

Very truly yours,

William O. Parker, Jr.

WMA:vr

cc: Mr. Angelo Giambusso