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April 18, 1983

Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Re: Oconee Nuclear Station
Docket No. 50-269

Dear Mr. O'Reilly:

Please find attached Reportable Occurrence Report RO-269/83-05. This report is submitted pursuant to Oconee Nuclear Station Technical Specification 6.6.2.1.b(2) which concerns operation in a degraded mode permitted by a limiting condition for operation, and describes an incident which is considered to be of no significance with respect to its effect on the health and safety of the public. My letter of April 15, 1983 addressed the delay in preparation of this report.

Very truly yours,

Hal B. Tucker

Hal B. Tucker

JCP/php
Attachment

cc: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
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Mr. J. C. Bryant
NRC Resident Inspector
Oconee Nuclear Station

Mr. E. L. Conner, Jr.
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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Duke Power Company
Oconee Nuclear Station

Report Number: RO-269/83-05

Report Date: April 15, 1983

Occurrence Date: March 16, 1983

Facility: Oconee Units 1, 2, and 3, Seneca, South Carolina

Identification of Occurrence: Failure to meet double isolation criterion for the SSF RC Makeup System

Conditions Prior to Occurrence: Oconee 1: 100% FP
Oconee 2: 100% FP
Oconee 3: 100% FP

Description of Occurrence: On March 16, 1983, an Engineering evaluation conducted as part of follow-up actions concerning adequate containment isolation provided by containment isolation valves determined that the double isolation criterion was not met for the Standby Shutdown Facility (SSF) Reactor Coolant Makeup Pump tie-in to the Fuel Transfer Tubes. The valves are identified on Attachments 1, 2, 3, and 4. At the time of this determination the status of the valves inside the RB containment could not be confirmed. Later, during the course of the investigation, the position of the valves was determined by documentation review. This is a violation of the Final Safety Analysis Report (FSAR) General Design Criterion 53, and a degraded mode of operation per Technical Specification (T.S.) 3.6. Criterion 53, Containment Isolation Valves, states that piping that requires closure under accident conditions is provided with double isolation valves, and all isolation valves inside the Reactor Building (RB) requiring remote operation are electrically operated. T.S. 3.6 requires that containment integrity be maintained, that all non-automatic containment valves are closed as required, and in this case means that two valves on the RB side are to be closed.

The SSF was designed to provide an alternate means of shutting down each Oconee unit to hot shutdown condition and maintaining the unit(s) at this condition for approximately three days. It is not yet operational. The design for the SSF was submitted in February 1978 to the NRC, and Duke received their conceptual approval in December 1978. In July 1981, work was started on the SSF Reactor Coolant (RC) Makeup System on Unit 1 during its refueling outage. Similarly, work was started on the same system on Units 2 and 3 in January 1982 and May 1982, respectively. The tie-ins were completed during each unit's outage.

Apparent Cause of Occurrence: The cause of this occurrence was design deficiency resulting from inadequate review on the part of the designers and other responsible qualified personnel. The system was not designed correctly nor properly aligned once installed to satisfy the required design criterion. It was not recognized that the connection to the transfer tubes required double isolation. A possible contributing factor is that most Reactor Building penetrations have one isolation valve inside the RB and one isolation valve outside the RB. Manually operated valves (HP-428 and SF-97) will be changed to electrically operated valves to

satisfy the double isolation requirement before the system becomes operational.

Analysis of Occurrence: After investigation, the status of the manual isolation valves inside the RB was confirmed to be closed, and also the system's piping was seismically qualified. Therefore, actual containment integrity was not violated. By verifying shut Transfer Tube "A" and "B" isolation valves (SF1 and SF2) on all three units, and since valves SF-97 and HP-428 on all three units were locked shut, double isolation was achieved on each transfer tube.

The entire SSF RC Makeup System was designed as a seismic system so, in the event of an earthquake or severe transient, the line is not postulated to break. The likelihood of an earthquake or a severe transient in conjunction with a Loss of Coolant Accident is very small.

In the unlikely event radioactive leakage through the inside containment isolation valve occurred it would have to enter the bottom of the Spent Fuel Pool and rise through several feet of water to the Spent Fuel Pool room. The Spent Fuel Pool room has a separate ventilation system that is capable of being manually started after a Radiation Indicator Alarm. Area monitors exist in the Spent Fuel Pools to alert the operators to any abnormal radiation condition.

The health and safety of the general public were not endangered by this incident.

Corrective Action: SF 1 and 2 on all three units were verified shut and tagged shut. Also, the handwheel operators were removed and locked up. HP-428 and SF-97 will be changed from manual to electric motor operated valves during the forthcoming refueling outages of each unit. Relief valve 3HP-429 will be removed. Relief valves 1HP-429 and 2HP-429 which were scheduled for future installation will not be installed. A listing of SSF RC makeup isolation valves and their current position is contained in Attachment 1. Line drawings of these current valve arrangements and positions for each unit are shown in Attachments 2, 3, and 4.

Design Engineering has revised their procedure to require a concept review by the Safety Review and Licensing (SRAL) group before a design may be released. The SRAL group will also complete all design Safety Evaluation Checklists. A program will be developed at Oconee Nuclear Station to train all qualified reviewers on their responsibilities as qualified reviewers. A task force, at the Oconee Station, has been formed to study methods to prevent recurrence of incidents dealing with containment integrity.