UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

June 29, 2006

EA-06-070

Duke Power Company, LLC d/b/a
Duke Energy Carolinas, LLC (Duke)
ATTN: Mr. B. Hamilton
Vice President
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION - NRC INSPECTION REPORT 05000269/2006014, 05000270/2006014, AND 05000287/2006014

Dear Mr. Hamilton:

The purpose of this letter is to provide you with the Nuclear Regulatory Commission's (NRC's) final significance determination for a finding at Duke's Oconee Nuclear Station involving the failure to implement timely corrective actions in resolving east penetration room blowout panel-related deficiencies in all three Oconee Units. As documented in our letter dated March 31, 2006, this finding was assessed under the significance determination process as a preliminary greater than Green issue (i.e., an issue of at least low to moderate safety significance), as well as identified as an apparent violation (AV 05000269,270,287/2006012-01) of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action. Our letter offered you the opportunity (via regulatory conference or in writing) to give us your assessment of the risk significance and the associated apparent violation so that we would have a complete understanding of this issue prior to determining the final significance.

At your request, an open regulatory conference was conducted with members of your staff on May 17, 2006, to discuss Duke's position on this issue. The enclosures to this letter include the list of attendees at the regulatory conference, and copies of the material presented by your staff and the NRC at the regulatory conference. During the conference, Duke provided the results of its risk analysis, concluding that the finding was of very low safety significance. In addition, Duke agreed with NRC's characterization of the finding as a violation of regulatory requirements, and advised of its plans to implement modifications to address the related flooding concerns in all three Units by May 2007.

In addition to the uncertainties associated with not recovering secondary side heat removal, below is a list of some of the key points raised by Duke during the regulatory conference that were also considered **[as indicated]** during the NRC's post risk review:

- The inclusion of welds other than girth welds was considered by Duke to be inconsistent with the intended use of the EPRI TR-11880 pipe failure study; therefore, unlike the NRC's phase 3 analysis, only girth welds were considered in Duke's pipe rupture

frequency estimate. **[Adjustments were made to the NRC analysis to reflect a different weld count for the welds that could impact non-erosion/corrosion type of failures for large break sizes (non-scalable, non-system level). Because the proportion of scalable weld failures that result in small leaks is greater, the weld count for these was left unchanged.]**

- Piping lengths used in the NRC's phase 3 analysis were different than that taken from Duke's review of Oconee piping drawings and field walkdowns. **[The Duke measurements (adjusted up by 23 feet for Units 1 and 2 to account for auxiliary building ventilation room piping that could flood the respective east penetration room) were incorporated into the NRC analysis.]**

- Based on Duke's calculations, the automatic feedwater isolation system (AFIS) would actuate for very large breaks; thereby, precluding flooding of the high pressure injection (HPI) pumps. **[Consideration for AFIS to isolate main feedwater from very large breaks was incorporated into the NRC analysis.]**

- The scaling factor for proportional-type breaks used in the NRC's phase 3 analysis were inappropriately based on flow rate. **[The scaling factor for proportional-type breaks was changed to more appropriately reflect a scaling factor for zero to full break based on the pipe size.]**

- Duke confirmed the environmental qualification of emergency feedwater control valves 315 and 316. **[The valves' environmental qualification was acknowledged and appropriately taken into account.]**

- Duke considered equipment less than 10 pipe diameters from main feedwater headers to be vulnerable to jet impingement. **[No credit was granted for the general application of 10 effective pipe diameters as the zone of influence for jet impingement, for it may not be large enough. It needs to be site specific, based on the size of the leak and the potentially affected structures, systems, and components.]**

After considering the information developed during the inspection and the points addressed above, the NRC has concluded that the inspection finding is appropriately characterized in the mitigating systems cornerstone as having very low safety significance (Green). It should be noted that the final risk determination supporting this conclusion did not take in to account other HELB-related issues such as recovery via the standby shutdown facility with excessive main steam safety valve cycling, HELB effects on adjacent piping systems, non-sealed electrical penetrations and junction boxes, etc. These other HELB-related issues, along with the blowout panel-related deficiencies, are being addressed collectively under the HELB mitigation strategy reconstitution effort currently underway.

The subject finding was also determined to be a violation of NRC requirements, as delineated in our March 31, 2006, letter and presented during the regulatory conference (see Enclosure 3). However, because of its very low safety significance and because the issue was entered into Duke's corrective action program, the NRC is treating the finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. For administrative purposes,

this violation will be identified as NCV 05000269,270,287/2006014-01, Failure to Promptly Correct Long-Standing East Penetration Room Blowout Panel-Related Deficiencies That Preclude Flood Mitigation in the Auxiliary Building. Accordingly, the associated apparent violation AV 05000269,270,287/2006012-01 is closed.

In addition to the violation above, a related apparent violation of 10 CFR 50.73, Part (v) was also discussed during the conference, which concerned the failure to report that east penetration room blowout panel-related deficiencies would prevent the fulfillment of the HPI system safety function to mitigate the consequences of a HELB (i.e., to shutdown the reactor and maintain it in a cold shutdown condition). As described in our letter of March 31, 2006, this apparent violation was not considered for escalated enforcement because its safety significance was low and the particular regulatory process was not significantly impeded. Duke acknowledged the violation and indicated that a licensee event report would be submitted. As such, it has been determined that this Severity Level IV violation should be non-cited in accordance with Section VI.A.1 of the NRC's Enforcement Policy. For administrative purposes, this violation will be identified as NCV 05000269,270,287/2006014-02, Failure to Report East Penetration Room Blowout Panel-Related Deficiencies Would Prevent Fulfillment of the HPI System Safety Function. Accordingly, the associated apparent violation AV 05000269,270,287/ 2006012-02 is closed.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions regarding this letter, please contact Michael E. Ernstes, Chief, Reactor Projects Branch 1, at (404)-562-4540.

Sincerely,

//RA//

Charles Casto, Director
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287, 72-04
License Nos.: DPR-38, DPR-47, DPR-55

Enclosures: 1. List of Attendees
2. Material presented by Duke
3. Material presented by NRC

cc w/encls: (see page 3)

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X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE

ADAMS: X Yes ACCESSION NUMBER: ML062340115

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Distribution w/encl: (see page 5)

Letter to B. Hamilton from Charles Casto dated June 29, 2006.

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S. Sparks, Senior Enforcement Specialist, RII
*J. Tatum, ESS, NRR
L. Trocine, Office of Enforcement
*J. Vail, DRA, NRR

* Participated by telephone

AGENDA

OPEN REGULATORY CONFERENCE

OCONEE NUCLEAR STATION

May 17, 2006

NRC REGION II OFFICE, ATLANTA, GA.

I. OPENING REMARKS, INTRODUCTIONS AND MEETING INTENT
Mr. C. Casto, Director, Division of Reactor Projects (DRP)

II. NRC REGULATORY CONFERENCE POLICY
Mr. D. C. Payne, Acting Chief, Branch 1, DRP

III. STATEMENT OF THE ISSUE WITH RISK PERSPECTIVES
Mr. D. C. Payne, Acting Chief, Branch 1, DRP

IV. SUMMARY OF APPARENT VIOLATION
Mr. D. C. Payne, Acting Chief, Branch 1, DRP

V. LICENSEE RISK PERSPECTIVE PRESENTATION

VI. LICENSEE RESPONSE TO APPARENT VIOLATION

VII. BREAK/NRC CAUCUS
Mr. C. Casto, Director, DRP

VIII. CLOSING REMARKS
Mr. C. Casto, Director, DRP

Draft Apparent Violations

(1) Considered for Escalated Enforcement:

10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, requires in part that measures be established to assure that conditions adverse to quality, such as deficiencies, deviations, and non-conformances are promptly identified and corrected.

Contrary to the above, a condition adverse to quality concerning east penetration room blowout panel-related deficiencies, identified in all three Oconee Units, was not promptly corrected. The deficiencies involved inappropriate blowout panel modifications (identified as a violation in 2002), as well as inappropriate floor curbing and inadequate internal door and block wall strength (all identified in DEC's corrective action program in 2001). As a result of these deficiencies, the blowout panels would not be assured of opening in the event of certain high energy line break (HELB) scenarios, and the HELB-related flood waters would egress down into the auxiliary building; thereby, significantly impacting the safety-related high pressure injection pumps. Consequently, Units 1, 2, and 3 continue to be operated outside their licensing basis with respect to HELB-related flood mitigation in the auxiliary building.

Note: The apparent violations discussed at this Regulatory Conference are subject to further review and subject to change prior to any resulting enforcement action.

Draft Apparent Violations (cont'd)

(2) Not Considered for Escalated Enforcement:

10 CFR 50.73, Part (v), requires the reporting of any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to (A) shutdown the reactor and maintain it in a safe shutdown condition (licensing basis is cold shutdown) and (D) mitigate the consequences of an accident.

Contrary to the above, the licensee failed to report that improper modifications to the east penetration room blowout panels would prevent the fulfillment of the safety function of the HPI system to mitigate the consequences of a HELB accident (i.e., to shutdown the reactor and maintain it in a cold shutdown condition).

Note: The apparent violations discussed at this Regulatory Conference are subject to further review and subject to change prior to any resulting enforcement action.