

December 1, 2003

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Subject: Oconee Nuclear Station - Units 1, 2 and 3  
Docket Nos. 50-269, 50-270, 50-287  
Response to NRC Preliminary White Finding

Duke Energy Corporation (Duke) is in receipt of the referenced NRC preliminary white finding letter<sup>1</sup> and SDP Phase III Summary attachment, dated August 7, 2003. The subject letter describes a Duke identified issue involving the pressurizer ambient losses exceeding the pressurizer heater capacity of those heaters powered from the Standby Shutdown Facility (SSF). The purpose of this letter is to acknowledge this white finding, provide additional information based on analysis completed subsequent to aforementioned August 7, 2003, letter and notify the NRC that Duke does not request a regulatory conference to discuss this issue.

On March 7, 2003, Duke identified that the pressurizer heater capacity, when powered from the SSF, was insufficient to maintain the RCS in a subcooled condition. Consequently, it was determined that in certain scenarios this could lead to RCS pressurization to the point where the pressurizer safety valves would lift. Should this occur, a challenge to core cooling could result if the safety valves failed to reseal.

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<sup>1</sup> NRC letter to Duke Energy Corporation, (Attn: R. A. Jones), "Oconee Nuclear Station - NRC Inspection Report 05000269/2003011, 05000270/2003011, and 05000287/2003011; Preliminary White Finding" dated August 7, 2003.

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Subsequent to the receipt of the August 7, 2003, letter, Duke undertook an extensive effort to predict operator action and plant response for a scenario where pressurizer ambient losses are greater than pressurizer heater capacity, when powered from the SSF. As a result of this effort, Duke concluded that the scenarios involved are varied and complex. Accident mitigation paths are dependent upon the timing of actions, the potential for Technical Support Center direction, the procedure revision in place at the time, analysis far into the scenario time line and operator decisions. With the myriad of possible combinations, it became evident that the exact scenario path of progression would be difficult to clearly define. Consequently, Duke has chosen not to expend the significant resources necessary to establish, with certainty, the risk significance of this issue.

The risk analysis performed by both Duke and the NRC has shown that the performance of the Pressurizer Safety Valves (PSVs) greatly affects the overall risk values. It is not evident to Duke that an industry or NRC consensus has been established regarding PSV modeling. Accordingly, Duke does not believe that there is adequate justification for the values used by the NRC in predicting PSV performance. To provide more clarity and a greater consensus on this issue, Duke will charter EPRI to convene an expert panel to resolve the uncertainties regarding modeling of PSVs.

In addition to the activities described above, Duke has completed several corrective actions. These include:

- development of a Selected Licensee Commitment to control pressurizer heater capacity until the Technical Specifications associated with pressurizer heater capacity can be revised
- submittal of a license amendment request to increase required pressurizer heater capacity
- revisions to procedure guidance
- revision to the UFSAR
- determination of ambient heat losses on all three Oconee units,
- insulation improvements

Also, Duke began modifications to increase pressurizer heater capacity, when powered from the SSF, in 2001. These modifications are expected to be completed by the end of 2003. On March 19-22, 2003, the NRC performed an inspection focused on the procedure changes associated with this issue. No findings of substance were identified by this inspection.<sup>2</sup>

Duke believes that this issue should be characterized as an old design issue. Duke's investigation has traced the origins of this problem back to the time when the SSF was placed into service. This issue was identified as part of a voluntary initiative to evaluate the capabilities of the pressurizer heaters to maintain RCS pressure as expected. This initiative initially concluded that pressurizer spray valve leakage was the primary cause of the problems associated with maintaining RCS pressure. Spray valve leakage on all three Oconee units masked the problems associated with the ambient losses. The voluntary assessment recommended ambient heat loss testing all Oconee three units, following repair of the pressurizer spray valves. It was this ambient heat loss testing that led to the discovery that the ambient heat losses were greater than the pressurizer heater capacity.

Following the discovery of this issue, Duke undertook aggressive actions to prevent recurrence. These included a Selected Licensee Commitment to control pressurizer heater capacity, a license amendment request to require greater pressurizer heater capacity and the revision of procedures to control the RCS in a water-solid condition from the SSF. These procedure changes were inspected by the NRC in 2002. Additionally, modifications are planned and scheduled to increase pressurizer heater capacity on all three Oconee units. These modifications are scheduled to be completed by the end of 2003.

The pressurizer ambient heat loss problem would not have been detected by routine licensee efforts. There are no routine inspections or surveillances associated with ambient heat loss. The only routine Technical

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<sup>2</sup>NRC letter to Duke Energy Corporation, (Attn: W. R. McCollum), "Oconee Nuclear Station - NRC Special Inspection Report 50-269/02-08, 50-270/02-08, and 50-287/02-08", dated April 22, 2002.

Specification surveillances are those associated with verifying the capacity of pressurizer heaters, on an 18 month frequency.

This issue does not reflect a performance deficiency associated with any Duke program, policy or procedure. This issue deals with ambient heat losses that were masked by pressurizer spray valve leakage. Duke's voluntary initiative to quantify ambient losses, following pressurizer spray valve repair, led to the discovery of this issue.

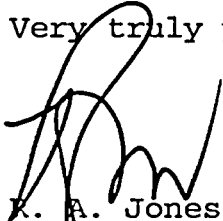
Duke also wishes to comment on the seismic values used for initiating event frequencies associated with a seismic event and with a fire. For the seismic event, the NRC performed a hand calculation that extrapolated from existing data. Duke believes that this method overpredicts the initiating event frequency. Duke also believes that the fire frequency was conservatively calculated by the NRC. Scaling factors, as approved by various EPRI studies, can be used to lower the initiating event frequency. In addition, if an Oconee specific fire study were performed, rather than relying on generic studies, the resulting initiating event frequency would be even lower.

In conclusion, Duke acknowledges this white finding. Duke has chosen not to expend the significant resources necessary to address the uncertainty associated with this potential scenario. However, Duke believes that some risk values used in the NRC's analysis are overly conservative, and is undertaking an effort to better quantify the risk associated with pressurizer safety valves. Duke also believes that this issue qualifies for treatment as an old design issue.

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If you have any questions or require additional  
information, please contact Noel Clarkson, Oconee  
Regulatory Compliance Group at 864-885-3077.

Very truly yours,

A handwritten signature in black ink, appearing to be 'R. A. Jones', written over the typed name.

R. A. Jones  
Site Vice President  
Oconee Nuclear Site

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Cc: L. A. Reyes, Regional Administrator  
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