



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET, SW, SUITE 23T85  
ATLANTA, GEORGIA 30303-8931

November 22, 2006

EA-06-199

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

SUBJECT: FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND  
NOTICE OF VIOLATION (OCONEE NUCLEAR STATION - NRC INSPECTION  
REPORT NOS. 05000269/2006017, 05000270/2006017, AND  
05000287/2006017)

Dear Mr. Hamilton:

The purpose of this letter is to provide you with the Nuclear Regulatory Commission's (NRC) final significance determination for a finding involving the failure of Duke's Oconee Nuclear Station to effectively control maintenance activities, and also the failure to assess and manage the risk, associated with removing an access cover in the south wall of the standby shutdown facility (SSF) to facilitate installation of temporary electrical power cables.

The finding was initially documented in NRC Integrated Inspection Report Nos. 05000269,270,287/2006002, which was issued on April 28, 2006. NRC Inspection Report Nos. 05000269,20,287/2006016, dated August 31, 2006, documented the NRC's assessment of the finding under the significance determination process, and concluded that the finding was a preliminary White issue (i.e., an issue of low to moderate safety significance which may require additional NRC inspection). The cover letter to our inspection report of August 31<sup>st</sup> provided Duke an opportunity to request a regulatory conference on this matter. In lieu of a regulatory conference, Duke chose to provide a written response, dated October 5, 2006.

Duke's written response documented its conclusion that a performance deficiency did not exist as described in the NRC's inspection report of August 31, 2006. Additionally, based on its review, Duke concluded that the NRC's SDP Phase 3 evaluation, the conclusions of which are inappropriately based on qualitative factors resulting in the preliminary White finding, support a conclusion that the resulting safety significance was actually very low (Green).

After carefully considering the information developed during the inspection and the information provided in Duke's written response, the NRC has concluded that the final inspection finding is appropriately characterized as White in the Mitigating Systems cornerstone. In response to Duke's contention that the matter does not represent a performance deficiency, the NRC notes that although the access penetration may have been constructed in 1992 to the best estimate of flood height (4.71 feet above grade) at the time, by 1993 Duke was aware that this estimate was flawed and non-conservative. By 1993, Duke was aware that predicted flood heights were much higher than 4.71 feet. In fact, the percentage of floods that were assumed to overtop the effective five foot flood barrier/wall and fail the SSF was estimated to be 20 percent. As such,

removal of the access cover would directly impact the accredited effectiveness of the five foot flood barrier/wall. In 1999, a Duke maintenance rule expert panel re-assessed the safety significance of the SSF flood barrier and concluded that the safety significance was low. The panel considered the SSF wall as a passive feature with the only likely failure being a watertight doorway. However, the panel failed to recognize that the access cover was susceptible to maintenance which could create a bypass around the wall and degrade the function of the wall. Accordingly, since Duke's expert panel failed to act in consideration of the best available information at the time, the NRC considers the 1999 re-assessment of the SSF flood barrier to be non-conservative. Therefore, the staff concluded that Duke's subsequent failure to assess and manage the increased risk due to potential flooding that resulted from the SSF maintenance activity was a performance deficiency.

The NRC reviewed the information provided in Duke's written response, and concluded that changes to our preliminary analysis were warranted. In particular, the physical location of the SSF cover was revised to reflect the information provided by Duke. The NRC also agreed with Duke that an additional SSF success term (used in the staff's preliminary seismic evaluation) was redundant, and as such this term was deleted from the final analysis. The staff did not agree, however, with Duke's recommended change to the initial fragility term (for seismic considerations), as no new information was provided by Duke to support such a change. Applying these modifications to the final significance determination resulted in a change in core damage frequency that was consistent with the licensee's assessment.

Duke also stated that, given the uncertainty associated with the results of an external events analysis, a qualitative assessment was more appropriate. The NRC recognized that such consideration was appropriate in this situation, and considered other attributes that would have a bearing on safety significance. These included defense in depth and the ability to protect the public given an accident. The initiating events associated with this performance deficiency fall into the rare occurrence category. However, for these postulated accident sequences, there was an exclusive reliance upon the SSF to prevent core damage (no redundancy or diversity of mitigation). Any functional degradation of the SSF flood barrier from these initiating events directly increased the failure probability of the SSF and therefore, increased the likelihood of core damage. With a loss of core cooling, the fuel cladding and the Reactor Coolant System would eventually fail, causing a loss of multiple barriers that protect the public. The significance of the SSF flood barrier was clearly understood and delineated in Duke's Probabilistic Risk Assessment for External Events, dated December 1996. Given the nature of the initiating events associated with this performance deficiency, the emergency plan response would also be impaired. Consequently, from a blended qualitative and quantitative perspective the NRC's final Significance Determination remains low to moderate (White).

You have 30 calendar days from the date of this letter to appeal the staff's determination of significance for the identified finding. Such appeals will be considered to have merit only if they meet the criteria given in NRC Inspection Manual Chapter 0609, Attachment 2.

The NRC also has determined that this finding resulted in a violation of regulatory requirements. In this case, the failure to use adequate procedures to control maintenance activities that could affect safety-related equipment was determined to be a violation of Technical Specification 5.4.1. As a result, Duke failed to assess and manage the increase in risk from external floods for this maintenance activity, as required by 10 CFR 50.65(a)(4). The violation is cited in the enclosed Notice of Violation (Notice), and the circumstances surrounding

the violation are described in detail in NRC Inspection Report Nos. 05000269,270,287/2006016, dated August 31, 2006, and NRC Integrated Inspection Report Nos. 05000269,270,287/2006002, dated April 28, 2006. In accordance with the NRC Enforcement Policy, the Notice of Violation is considered escalated enforcement action because it is associated with a White finding.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

For administrative purposes, this letter is issued as a separate NRC Inspection Report, No. 05000269,270,287/2006017, and the above violation is identified as VIO 05000269,270,287/2006017-01, White Finding - Inadequate Procedural Controls and Risk Management Associated with Breach in SSF Flood Protection Barrier. Accordingly, apparent violations AV 05000269,270,287/2006016-01 and AV 05000269,270,287/2006016-02 are closed.

Because plant performance for this issue has been determined to be in the regulatory response band, we will use the NRC Action Matrix to determine the most appropriate NRC response for this event. We will notify you by separate correspondence of that determination.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS) which is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, any response should not include any personal privacy, proprietary, classified, or safeguards information so that it can be made available to the public without redaction. The NRC also includes significant enforcement actions on its Web site at [www.nrc.gov](http://www.nrc.gov); select **What We Do, Enforcement**, then **Significant Enforcement Actions**.

Should you have any questions regarding this letter, please contact Mr. James Moorman, Chief, Branch 1, Division of Reactor Projects, at (404) 562-4647.

Sincerely,

/RA/ by Victor McCree Acting for/

William D. Travers  
Regional Administrator

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

Enclosure: Notice of Violation

cc w/encl: (See page 4)

DPC

4

cc w/encl:

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\*See Previous Concurrence

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ADAMS: X Yes      ACCESSION NUMBER: ML063260154

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SIGNATURE	<b>CFE</b>	<b>CAC</b>	<b>WGR</b>	<b>VMM</b>		
NAME	EVANS	CCASTO	WROGERS	VMcCree		
DATE	11/02/2006	11/02/2006	11/03/2006	11/22/2006		
E-MAIL COPY?	YES    NO	YES    NO	YES    NO	YES    NO		

OFFICIAL RECORD COPY

DOCUMENT NAME: C:\FileNet\ML063260282.wpd

## NOTICE OF VIOLATION

Duke Power Company  
Oconee Nuclear Station  
Units 1, 2 and 3

Docket Nos. 50-269, 50-270, 50-287  
License Nos. DPR-38, DPR-47, DPR-55  
EA-06-199

During an NRC inspection completed on August 31, 2006, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Technical Specification 5.4.1 requires that written procedures shall be established implemented and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Section 9, Procedures for Performing Maintenance, requires that maintenance which can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.

10 CFR 50.65 (a)(4), "Requirements for monitoring the Effectiveness of Maintenance at Nuclear Power Plants" requires in part, that prior to performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities.

Contrary to the above, on August 13, 2003, while performing planned maintenance involving the opening of a penetration in the Standby Shutdown Facility (SSF) exterior wall to route temporary electrical power cables, the licensee failed to use an adequate procedure to open and control a penetration through a passive flood protection barrier and route temporary power cables. Specifically, the procedure used, IP/0/A/3010/006, Cable Pulling Procedure, Revision 16, did not address the installation of temporary power cables, and did not address breaching and restoring a flood barrier. As a result, the licensee failed to assess and manage the increase in risk associated with the degradation of the flood protection capability of the SSF's exterior wall from August 13, 2003 to August 3, 2005.

This violation is associated with a White significance determination process finding for Units 1, 2 and 3 in the Mitigating Systems cornerstone.

Pursuant to the provisions of 10 CFR 2.201, Duke Power Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice of Violation (Notice) within 30 days of the date of the letter transmitting this Notice. This reply should be clearly marked as a "Reply to a Notice of Violation; EA-06-199" and should include: (1) the reason for the violation or, if contested, the basis for disputing the violation or severity level; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Where good cause is shown,

Enclosure

consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS) accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within 2 working days.

Dated this 22<sup>nd</sup> day of November 2006