

October 25, 2011

MEMORANDUM TO: Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation

FROM: Brian W. Sheron, Director */RA/*  
Office of Nuclear Regulatory Research

SUBJECT: IMPENDING PUBLICATION OF DRAFT NUREG-XXXX,  
"COMMON-CAUSE FAILURE ANALYSIS IN EVENT AND  
CONDITION ASSESSMENT: GUIDANCE AND RESEARCH"

I am forwarding for your information the enclosed draft of NUREG-XXXX, "Common-Cause Failure Analysis in Event and Condition Assessment: Guidance and Research." This NUREG was developed in response to the Office of Nuclear Reactor Regulation's (NRR's) "User Need Request for Support in the Development and Enhancements of NRC Risk Analysis Tools (NRR-2010-017)," August 23, 2010. Staff representatives from the Division of Risk Assessment in NRR reviewed a draft of this report, which was transmitted with a memorandum dated July 18, 2011, and the enclosed report reflects the resolution of their comments. The Office of Nuclear Regulatory Research (RES) will submit the draft NUREG for publication for public review and comment. The public review period is from October 2011 to December 2011, and RES will host a public meeting early next calendar year to give stakeholders an opportunity to provide feedback and comments on the NUREG. Following the evaluation and appropriate resolution of stakeholder comments, RES intends to publish a final NUREG in CY2012.

This report provides guidance for assessing potential common cause failures (CCF) during event and condition assessment (ECA). ECA is an application of probabilistic risk assessment (PRA) in which observed equipment failures, degradations, and outages are mapped into a risk model to obtain a numerical estimate of risk significance. Past experience has shown that conditional common-cause failure probability is often a significant contributor to the risk significance of a performance deficiency. This NUREG addresses the need for greater consistency in CCF analysis in programs such as the Significance Determination Process (SDP) and the Accident Sequence Precursor Program. This approach has been reviewed by experts from staff, national labs and academia, and has achieved consensus among NRC risk analysis staff from the regions, NRR, and RES.

This report also provides guidance stressing the importance of treating potential CCF relative to the observed performance deficiency rather than to the piece-part failure and describes the treatment of CCF for a number of categories of component failures and outages. The approach

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taken in this NUREG is consistent with the basic principles of event assessment, as well as to the SDP guidance in Inspection Manual Chapter 0308. This report also describes technical issues and summarizes ongoing and future research intended to address these issues.

Please feel free to contact the responsible RES contact if there are any questions concerning the impending publication of this report.

Enclosure:  
As stated

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cc: M. Johnson, NRO

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