

February 5, 2013

Dr. J. Sam Armijo, Chairman  
Advisory Committee on Reactor Safeguards  
U.S. Nuclear Regulatory Committee  
Washington, DC 20555-0001

SUBJECT: DRAFT NUREG-1855, REVISION 1, "GUIDANCE ON THE TREATMENT OF UNCERTAINTIES ASSOCIATED WITH PRAs IN RISK-INFORMED DECISIONMAKING"

Dear Dr. Armijo:

On December 7, 2012, the NRC staff presented to the Advisory Committee on Reactor Safeguards (the Committee) its draft report of NUREG-1855, Revision 1 "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking" with regard to its intent to publish for public review and comment. The staff presentation focused on the major changes in Revision 1 from Revision 0 including those comments received from the Subcommittee on Reliability and PRA during the June 19, 2012, Subcommittee meeting. In your letter dated January 2, 2013, the Committee provided several conclusions and recommendations. We appreciate the Committee's thoughtful review. The staff's responses are provided below.

- (1) Committee Recommendation: NUREG-1855, Revision 1, provides valuable guidance for the treatment of uncertainties in risk information used for decision making. It should be issued for public comments.

Staff Response: The staff plans to release draft NUREG-1855, Revision 1 for public review and comment within the next several weeks.

- (2) Committee Recommendation: Prior to issuing the final report, the staff should consider revising the guidance to note that assessment and review of uncertainties for all proposed risk-informed applications, even when the point-estimate results are well below the nominal acceptance criteria, can provide important information about the degree of confidence in the available margins to the acceptance criteria.

Staff Response: In addressing the public comments, the staff will also include this insight in the report.

- (3) Committee Recommendation: The guidance in NUREG-1855, Revision 1, provides an appropriate framework for the identification and quantification of uncertainties. The examples provided in the EPRI reports that are referenced in the NUREG do not clearly demonstrate the appropriate application of this guidance.

Staff Response: The examples provided in the Electric Power Research Institute (EPRI) report and referenced in the NUREG document are hypothetical and provide clarity with regard to how a licensee might use the NUREG to prepare a submittal. Additional

explanation was added in these examples to directly illustrate how each part of the guidance in NUREG-1855 could be used for a typical risk-informed application.

- (4) Committee Recommendation: The staff should initiate efforts to ensure that the principles of uncertainty analysis in NUREG-1855 are applied more consistently throughout the NRC.

The Committee in their letter further states: NUREG-1855, Revision 1, is focused primarily on licensee preparation and staff reviews of risk-informed licensing applications. However, the report describes general principles of uncertainty assessment that apply to probabilistic and deterministic analyses which are performed routinely by NRC staff to support regulatory decisions and reactor oversight functions. These principles are not applied by all branches of the NRC.

Decisions about proposed regulatory practices and enforcement options would benefit from a deeper understanding of the underlying uncertainties and the degree of confidence in the available safety margins that are afforded by each alternative.

Staff Response: The staff agrees that the general principles described in the report can be used to support regulatory decisions and reactor oversight functions and that there is inconsistency in how uncertainty is addressed throughout the NRC. The general application of these principles to other agency activities is discussed in NUREG-1855. Additionally, the staff will forward the NUREG-1855 to the program offices and regions for their use and consideration. The staff notes that the consideration of the Risk Management Regulatory Framework (NUREG-2150), currently underway, will create a forum in which the staff will discuss uncertainty as it relates to risk-informed decision making across the agency programs.

The staff plans to publish NUREG-1855, Revision 1, after consideration of the public comments. The staff will continue to keep the Committee informed on this important initiative.

Sincerely,

***/RA by MFW for/***

R. W. Borchardt  
Executive Director  
for Operations

cc: Chairman Macfarlane  
Commissioner Svinicki  
Commissioner Apostolakis  
Commissioner Magwood  
Commissioner Ostendorff  
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- (5) explanation was added in these examples to directly illustrate how each part of the guidance in NUREG-1855 could be used for a typical risk-informed application.
- (6) Committee Recommendation: The staff should initiate efforts to ensure that the principles of uncertainty analysis in NUREG-1855 are applied more consistently throughout the NRC.

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