



**Biff Bradley**  
DIRECTOR  
RISK ASSESSMENT  
NUCLEAR GENERATION DIVISION

May 12, 2008

Mr. Jay Robinson  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**Subject:** Submittal of Matrix Comparing Industry Approach to Modeling Digital Instrumentation and Control Systems in Probabilistic Risk Assessments with NRC's Draft NUREG Criteria and Draft ISG Review Guidelines

**Project Number: 689**

Dear Mr. Robinson:

Enclosed is a matrix comparing the industry's approach to modeling digital instrumentation and control (DI&C) systems in probabilistic risk assessments (PRAs) to the NRC's draft review criteria and guidance on the topic. The submission of this matrix to the NRC supports a milestone for Problem Statement 2, Risk Insights from DI&C PRA modeling Applied to Operating Reactors or New Reactors, under Task Working Group #3, Risk Informing DI&C, in the NRC's DI&C Project Plan. In assembling this matrix, the industry utilized their July 2007 white paper entitled "Modeling of Digital I&C in Nuclear Power Plant Probabilistic Risk Assessments" and compared the content of the paper to both the draft NUREG entitled "Approaches for Using Traditional Probabilistic Risk Assessment Methods for Digital Systems" and the most recent draft of the ISG entitled "Review of New Reactor Digital Instrumentation and Control Probabilistic Risk Assessments."

In comparing the content of the white paper to the criteria in the draft NUREG and the review guidelines in the draft ISG, the industry found that, in general, the approach outlined in the white paper satisfies the NRC's draft review criteria and guidance. However, as the white paper focused on issues unique to DI&C rather than general PRA issues, many aspects of standard PRA practice, such as modeling support system dependencies, performing uncertainty analysis, and documenting assumptions, were not explicitly discussed in the industry's white paper. The industry is considering referencing the ASME PRA Standard (RA-Sb-2005) in any future papers on the topic to reinforce the expectation that PRA quality requirements from the standard should be met when modeling DI&C systems.

Mr. Jay Robinson

May 12, 2008

Page 2

If you have any questions or require additional information, please contact me or Victoria Anderson (vka@nei.org; 202.739.8101).

Sincerely,

A handwritten signature in black ink, appearing to read "Biff", followed by a stylized, elongated flourish that loops back to the left.

Biff Bradley

Enclosure

c: Mr. Michael Franovich, U.S. Nuclear Regulatory Commission  
NRC Document Control Desk