

September 4, 2007

MEMORANDUM TO: Michael Franovich, Chief
PRA Operational Support & Maintenance Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

FROM: Diana Diaz Toro, Project Manager */RA/*
Electrical Instrumentation and Controls Branch
Division of Engineering
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE AUGUST 14, 2007, MEETING OF THE DIGITAL
INSTRUMENTATION AND CONTROL RISK-INFORMING TASK
WORKING GROUP WITH INDUSTRY REPRESENTATIVES TO
DISCUSS ISSUES RELEVANT TO RISK-INFORMING DIGITAL
INSTRUMENTATION AND CONTROLS

On August 14, 2007, the U.S. Nuclear Regulatory Commission (NRC) Digital Instrumentation and Controls (I&C) Risk-Informing Task Working Group (TWG) and industry representatives held a Category 2 public meeting at the NRC Headquarters in Rockville, MD. The purpose of the meeting was to discuss issues related with risk-informing Digital I&C system reviews. The discussions focused on Problem Statements 1, Modeling Digital Systems in PRA, Problem Statement 2, Risk Insights, and updates to Problem Statement 3, State-of-the-Art.

During the meeting the NRC staff presented an overview of the risk-informed decision-making process (ML0723350049) providing industry with clarification on risk-informed versus risk-based decisions. The industry proceeded to discuss the current version of the TWG-2 Diversity and Defense-in-Depth (D3) draft Interim Staff Guidance (ISG) with respect to the 30 minutes/automatic diverse actuation system (DAS) goal and additional risk analysis performed. Consistent with discussions during the July 11, 2007, public meeting (ML072220073), the industry continued to discuss the role of PRA in the assessment of the safety benefits of the current D3 draft ISG. The NRC staff noted that licensees, design certification (DC) applicants, or combined license (COL) applicants can propose an alternative approach to D3 using risk arguments. However, the NRC clarified that timely review or successful approval of the submittal may be impacted by using an alternative approach. The NRC staff added that, consistent with the NRC Regulatory Issue Summary 2007-06, *Regulatory Guide 1.200 Implementation*, submittals would have to address the quality of the baseline PRA model and would need to conform to Regulatory Guide 1.200, Revision 1, *An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities*. Further, the NRC staff reiterated the vision for Problem Statement 2 to bring together instrumentation and control and PRA expertise in a joint effort to pilot the use of traditional PRA methods to risk-inform digital systems including areas such as D3.

The industry's presentation, *Generation of Risk Insights from PRA to Address Digital I&C Issues* (ML0723350047), further stated that a DAS could cost at least \$1 million for existing nuclear power plants and that the cost-benefit to install, operate, and maintain an automatic DAS using the NUREG/BR-0058, *Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission*, thresholds for backfit would be several orders of magnitude greater than the \$2,000 per person-REM standard. The industry's presentation also concluded that certain events, including large and medium loss-of-coolant accidents (LOCAs), coincident with a digital system common cause failure are not significant risk contributors.

During the meeting the NEI White Paper, *Modeling of Digital I&C in Nuclear Power Plant Probabilistic Risk Assessments* (ML0723350195), addressing Problem Statement 1 was also discussed. In addition, the disposition of the following action items resulting from the July 11, 2007, was discussed:

- Industry clarified that the Memorandum of Understanding (MOU) had been signed; however, additional information from the NRC was necessary with respect to the BTP-19 analysis.
- Industry requested additional information about the type of information and purpose with respect to vendor databases of developmental and operating experience.

Summary of Action Items

The following key action items were assigned during the meeting:

- Industry:
 - The industry will provide information demonstrating how their approach satisfies the five principles of risk-informed decision-making as defined in Regulatory Guide 1.174.
 - The industry will provide additional information addressing the staff's input concerning the Problem Statement 1 White Paper by September 7, 2007.
 - NEI will provide input to NRC regarding the content of the Digital I&C Risk-Informing TWG ISG (Problem Statement 1).
 - Follow-up/status of the MOU (Problem Statement 2 and 3).
- NRC:
 - The NRC will organize the next meeting to address Problem Statement 1 for the end of September 2007 or beginning of October 2007.
 - NRC will formally request industry access to vendor databases of developmental and operating experience. The written request will provide additional information about the purpose, format, and type of information.
 - The NRC will provide a list of references to industry regarding the regulatory basis for requiring a BTP-19 analysis.
 - The NRC staff will continue drafting the ISG for Problem Statement 1.

Following the meeting, the NRC staff expressed its appreciation to the industry for their participation and comments. An attendance list is provided in the enclosure. The meeting agenda can be found via the Agencywide Documents Access and Management System (ADAMS), Accession Number ML072140364. Please direct any inquiries to Diana Diaz Toro at 301-415-3135, or ddt1@nrc.gov.

Enclosure: List of Attendees

cc w/encl: See next page

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cc w/encl: See next page

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ATTENDEES

MEETING OF THE DIGITAL I&C RISK-INFORMING TWG WITH INDUSTRY
REPRESENTATIVES TO DISCUSS ISSUES RELATED WITH RISK-INFORMING DIGITAL I&C
REVIEWS AND THE ASSOCIATED PROJECT PLAN

AUGUST 14, 2007

INDUSTRY:

Jeff Stone	Constellation	
Masafumi Utsumi	MHI	
William Catullo	Westinghouse	
Richard Anderson	Westinghouse	
Kimberly Keithline	NEI	
Dave Blanchard	AREI	
Bob Ezinna	AREVA	(By Phone)

NRC:

Mike Franovich	NRR
Steven Arndt	RES
Todd Hilsmeier	NRO
Cliff Douth	NRR
Alan Kuritzky	RES
John Smith	NRO
Glenn Kelly	NRO
Dennis Damon	NMSS

ENCLOSURE