February 22, 2008

MEMORANDUM TO: Deborah A. Jackson, Chief
Technical Support Branch
Special Projects and Technical
Support Directorate
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

FROM: David L. Rahn, Sr. I&C Engineer
Technical Support Branch
Special Projects and Technical **/RA/**
Support Directorate
Division of Fuel Cycle Safety
and Safeguards, NMSS

SUBJECT: JANUARY 30, 2008, SUMMARY OF PUBLIC MEETING WITH THE NUCLEAR ENERGY INSTITUTE TO DISCUSS TASK WORKING GROUP #7, DIGITAL INSTRUMENTATION AND CONTROL FOR FUEL CYCLE FACILITIES

On January 30, 2008, Task Working Group (TWG) #7 held a public meeting to discuss various issues related to digital instrumentation and control problem statements and methodology.

The TWG first discussed the proposed wording of specific problem statements. The TWG generally agreed that each problem statement presented is appropriate. Nuclear Energy Institute (NEI) suggested a few syntactical changes which allowed each statement to read in a consistent manner, and focused them such that they are directed toward defining for potential license reviewers what licensee response would be considered “an acceptable means” for addressing each topic presented. In general the statements had been revised from their previous versions such that criteria applicable solely to digital instrumentation and control applications for power reactors were removed.

Next, a presentation was made by Dr. Christopher Tripp, Senior Nuclear Process Engineer within the Nuclear Regulatory Commission’s (NRC’s) Office of Nuclear Material Safety and Safeguards, Fuel Cycle Safety and Safeguards (FCSS) Division, regarding the NRC staff’s position regarding independence of individual items relied on for safety (IROFS) failures and the likelihood of common-mode failures. Essentially, functional independence of control

CONTACT: David Rahn, NMSS/FCSS
(301) 492-3115

mechanisms serving as individual IROFS for particular criticality prevention applications is assumed as part of the index methodology for evaluating the likelihood of a particular criticality event. If these control measures are not, in fact, truly independent then the overall calculation of event likelihood is void. Dr. Tripp clarified that FCSS Interim Staff Guidance -01 (ISG), "Qualitative Criteria for Evaluation of Likelihood," states that if the sum of the likelihoods of all potential common-mode failures which can occur for a system of IROFS is significantly less than the independent failures which can occur for a system of control measures serving as IROFS, then the IROFS may be treated for all practical purposes as independent. He further clarified that "significantly less" means the likelihood of the cumulative effect of the common-cause failures should be at least two orders of magnitude (1E-2) less than the estimate for the independent failures within the system of IROFS. (That is, the common mode failure contribution to the total likelihood of failure is no more than an additional 1% (0.01) of the estimate of total likelihood of failure.)

The industry representatives of the task working group were directed to review this staff position and ascertain whether it is reasonable to use this type of criteria for developing estimates of overall control system reliability for criticality prevention applications. If so, then the industry representatives were to draft suggested wording for consideration by the staff for incorporation into the ISG for Problem Statement 3.

Friday, February 29, 2008, at 8:30 a.m. was identified as the next working teleconference meeting. A two-hour session will be scheduled and announced publicly.

ACTION ITEMS

Item	Description	Responsibility
1.	Prepare proposed wording for consideration to be inserted into a draft ISG for Problem Statement 3, regarding Independence of Controls used as IROFS for Criticality Prevention	Industry Members NEI
2.	Draft an Interim Guidance for Problem Statement 3 based on input received from Industry Members and NEI	David Rahn

PARTICIPANTS

NRC and external stakeholders, including members of NEI, industry representatives, consultants to the nuclear industry, and interested members of the Public:

NRC	Industry	Public
James Smith	Felix Killar, NEI	(No members were
David Rahn	Ed Prytherch, Westinghouse	in attendance.)
Walter Schwink*	Steve Powers, AREVA*	
Denise Edwards	Gordon Clefton, NEI	
Wilkins Smith	Charlie Vaughan, NEI	
Dr. Christopher Tripp		

*via Teleconference

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