

May 6, 2005

MEMORANDUM TO: Robert A. Gramm, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Thomas W. Alexion, Project Manager, Section 1 **/RA/**
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF APRIL 21, 2005, CATEGORY 1 PRE-SUBMITTAL
MEETING WITH ELECTRIC POWER RESEARCH INSTITUTE (EPRI)
ON EPRI TOPICAL REPORT (TR) 1002835, "GUIDELINE FOR
PERFORMING DEFENSE-IN-DEPTH AND DIVERSITY ASSESSMENTS
FOR DIGITAL UPGRADES: APPLYING RISK-INFORMED AND
DETERMINISTIC METHODS"

On April 21, 2005, representatives of EPRI met with the NRC staff to outline the objectives and technical approach of EPRI TR 1002835. This TR was developed to provide a consistent, industry-wide approach for nuclear power plants to replace and upgrade instrumentation and control (I&C) equipment with more modern digital technology, by addressing the issue raised by the use of digital technology. This issue is the potential software-related common-cause failure in multiple trains or systems that are safety significant, and the need to ensure that the plant has adequate defense-in-depth and diversity (D3) to cope with such failures.

By way of background, TR 1002835 was submitted to the NRC by letter from the Nuclear Energy Institute (NEI) on February 22, 2005. However, the NRC staff had not had a pre-submittal meeting on this TR, in accordance with established NRC processes for the review of TRs. Therefore, as explained by letter from NRC to NEI on March 11, 2005, the NRC's plan is to treat this submittal as a draft, have this pre-submittal meeting, and provide feedback for NEI/EPRI to consider before submitting a revised TR. Once the NRC staff receives the revised TR, the revised TR would be treated as the "initial" submittal and the NRC staff would then perform the fee-waiver review and acceptance review of the "initial" submittal.

EPRI's presentation included the project genesis/basis/status, the guideline approach to key technical elements, and the proposed D3 methods. EPRI indicated that this project is an important effort, it has a broad industry interest, that the I&C failure rate is a small portion of the overall failure rate of equipment, and that current regulatory requirements for backup systems add unnecessary complexity. EPRI's position is that TR 1002835 provides an alternative approach to current regulatory requirements that improves safety focus and regulatory efficiency, facilitates review of licensee evaluations by the use of risk insights, and provides a more comprehensive method for assessing safety significance of digital common-cause failure (CCF). EPRI stated that the proposed guideline discusses the following D3 methods: the extended deterministic method (based largely on NRC's Branch Technical Position-19 approach with risk insights), the standard risk-informed method (which uses a risk focus with realistic assumptions), and the simplified risk-informed method (which uses a risk focus with conservative assumptions). At the end of the presentation, EPRI requested that the NRC

indicate when we would provide pre-submittal comments of the TR so that EPRI's working group could revise the TR as appropriate and send NRC the "initial" submittal of the TR.

During the course of EPRI's presentations, the NRC staff expressed a variety of viewpoints and asked for clarification of several points. In addition, the NRC staff acknowledged EPRI's statements but articulated no position with respect to them. The NRC staff also expressed a number of concerns and policy issues that would need to be addressed, including: which tools get used at which levels of safety, the use of probabilistic risk assessment (PRA) as a suitable tool for decision-making, the expectations on PRA quality, the expectations on how the review would proceed, the quality requirements and reliability assumptions for systems without diverse backup, an understanding of the capabilities and behavior of digital systems and how this is modeled in the PRA, and the use of the D3 methods as design tools (versus using D3 as a filter or a checking tool). Also, the NRC indicated that staff resources for review of applications are already strained, particularly with risk-informed applications. The NRC staff concluded by stating that it has much to consider, and that it will get back to NEI/EPRI with a written response, in the near term, on the request to review this TR.

A list of meeting attendees is attached. The presentation slides are available in ADAMS under Accession Number ML051110609.

Project No. 669

Attachment: Meeting Attendees

cc w/att: See next page

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NOTICE: ML050970015

Handouts: ML051110609

PKG.: ML051240228

Accession No.: ML051240187

NRC-001

***See Previous Concurrence**

OFFICE	PDIV-1/PM	PDIV-1/LA	EEIB/SC	PDIV-2/SC
NAME	TAlexion JAF*	DBurnette for DJohnson	EMarinos	RGramm
DATE	05/05/05	5/5/05	04/25/05	5/6/05

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PDIV-2 Reading

RidsNrrAdpt (BSheron)

RidsNrrDlpm (TMarsh)

RidsNrrDlpmLpdiv (HBerkow)

RidsNrrDlpmLpdiv1 (AHowe)

RidsOgcRp

RidsAcrsAcnwMailCenter

RidsNrrLADJohnson

RidsNrrPMTAlexion

TMensah, NRR Sr. Comm Analyst

EMarinos

CGrimes

PLoeser

MEETING WITH ELECTRIC POWER RESEARCH INSTITUTE (EPRI)

LIST OF ATTENDEES

APRIL 21, 2005

EPRI

R. Torok
T. Nguyen

NEI

T. Pietrangelo

OTHER

J. Stringfellow (Southern Nuclear)
R. DiSandro (Exelon Corporation)
G. Lang (consultant)
M. Baker (Diablo Canyon Power Plant)
P. Lobner (DS&S)
T. Jenkins (GE-NE)
J. Mauck (FANP)
R. Contratto (consultant/NUC-DCS)
J. Murray (Invensys Triconex)
P. Morris (Westinghouse)
D. Raleigh (LIS, Scientech)
D. Blanchard (Applied Reliability Engineering)
J. Bryan (Duke Power - Oconee)*
B. Shingleton (Duke Power - Oconee)*
J. Stone (Constellation - Calvert Cliffs)*

NRC

T. Alexion
E. Marinos
C. Grimes
T. Hilsmeier
R. Gramm
S. Arndt
R. Beacon
P. Loeser
C. Doult
W. Kemper

* participated by telephone

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