

September 5, 2017

MEMORANDUM TO: Dennis C. Morey, Chief
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Office of Nuclear Reactor Regulation

FROM: Jason J. Drake, Project Manager */RA/*
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SUBJECT: Summary of April 20, 2017, Public Meeting with NEI to discuss Staff Clarifications on the Previous Endorsement of NEI 01-01 and to Review the Draft Framework for Qualitative Assessments

On April 20, 2017, U.S. Nuclear Regulatory Commission (NRC) staff met with representatives from the Nuclear Energy Institute (NEI) to discuss draft NRC Regulatory Issue Summary 2017-XX Update to the Staff Endorsement on the Use of EPRI/NEI Joint Task Force Report, "Guideline On Licensing Digital Upgrades: EPRI TR-102348, Revision 1, NEI 01-01: A Revision of EPRI TR-102348 to Reflect Changes to the 10 CFR 50.59 Rule" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17159A791). All information related to the meeting and discussed in this summary can be found ADAMS package accession numbers ML17109A397 and ML17221A232.

In advance of the public meeting, NEI emailed the NRC staff a list of systems and components that were likely candidates for being upgraded under 10 CFR 50.59 (ADAMS Accession No. ML17109A404). NEI representatives stated they believed that providing the list for discussion in the meeting would be more useful than trying to define a scope for the RIS. The NRC staff and NEI discussed the list provided and drafted a simple table (ADAMS Accession No. ML17216A643) during the meeting for determining the application of the identified systems and components and for evaluating whether the pros and cons as to whether a potential for CCF of each item could be easily addressed using specific preventive, limiting and likelihood reduction measures that can be credited within a qualitative assessment process. This table has not been formalized and was intended only as a discussion exercise.

NEI representatives noted that not all items likely to be upgraded are described in sufficient detail within the FSAR to identify the modes of failure that were considered in the "safety analysis". Also, another difficulty in completing 10 CFR 50.59 evaluations for digital I&C upgrades and replacements has been when evaluating changes that can introduce new modes of failure not previously analyzed in the FSAR (e.g., digital upgrades that include combinations of functions that were previously evaluated as individual printed circuit board failures) or digital upgrades that included new points of common cause failures (e.g., networked connections.)

John Lubinski stated that the RIS is not intended to solve all issues with NEI 01-01, but rather it is intended to enable a large portion of lower safety significant systems to be upgraded easily under 10 CFR 50.59. Licensees are always free to develop plant upgrades under 10 CFR 50.59 that follow the original processes described within the guidance under NEI 01-01, or allowed under 10 CFR 50.90. The RIS is intended to provide a list of critical design attributes for digital I&C upgrades that would make it relatively easy to evaluate under the criteria within 10 CFR 50.59. Those attributes include “stand-alone”, versus networked solutions, combinations of design functions that mirror those functions of systems being replaced, and systems that maintain the same independence, redundancy, and diversity as those systems that are being replaced.

The staff identified that for non-safety related upgrades, where the concurrent failure of two or more upgraded design functions (due to a new common cause failure introduced by the use of digital technology) could put the plant into an unanalyzed state, the codes and standards that are applied to the upgraded system or components should be identified in the Qualitative Assessment. However those codes and standards need not be the ones identified by the NRC in regulatory guidance documents to be used for safety related designs.

The NRC staff described updates that were made by the staff to the draft RIS (ADAMS Accession No. ML17109A405) since it was last transmitted to NEI, along with a more detailed discussion on the proposed Qualitative Assessment process (ADAMS Accession No. ML17108A406). NEI and stakeholder input was solicited throughout the discussion. Key comments and actions are noted below.

Prior to the meeting NEI had developed two 10 CFR 50.59 evaluation examples for discussion during the meeting utilizing the guidance provided in the draft RIS. Unfortunately, time only permitted the walk-thru of the

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“Safety Related Digital 10 CFR 50.59 Evaluation” example, (ADAMS Accession No. ML17109A403), which focused on the replacement of the motor-operated potentiometer with a digital voltage reference adjuster for the excitation system of a Nuclear Plant’s emergency diesel generators (EDGs). NEI and the NRC staff agreed to discuss the second example (of the Open Phase Protection system) (ADAMS Accession No. ML17109A402) at a later date.

A comment from the public was made (Ken Scarola) regarding the RIS possibly allowing for changes to the Reactor Protection System and Engineered Safeguards Features actuation systems by only relying on a qualitative assessment of the likelihood of failure of the upgraded systems and components. In addition to stating that manual operator actions are available and the ability to independently monitor the parameter of interest to safety, one would need a much better basis (e.g., a formal diversity analysis) for excluding the need for further consideration of CCF than that made available through a qualitative assessment.

Comments and Actions from the meeting are:

- 1) NEI requested clarification on Table 1, Qualification Assessment Category Examples.
- 2) NEI also stated that they believed the applicability of the RIS should be consistent with the applicability of the 10 CFR 50.59 process with regard to structures, systems, or components (SSCs), which are those that have an updated final safety analysis report (UFSAR) described design function.
- 3) NRC staff to revise milestones towards the summer 2017 issuance of the RIS.
- 4) NRC staff requested to incorporate the scoping list into the body of the RIS.
- 5) NEI asked the NRC staff to clarify if any of the 12 items identified against NEI 01-01 would be addressed in the RIS.
- 6) NEI to provide additional written comments on the draft RIS by April 26, 2017.

It was agreed that additional public meetings and/or workshops should be scheduled to continue to work through the development of the draft RIS. An action from this discussion was to schedule a workshop in late May or early June 2017.

Public comments received and a list of meeting attendees can be found in the in the ADAMS package accession number ML17221A232.

D. Morey

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SUBJECT: SUMMARY OF APRIL 20, 2017, PUBLIC MEETING WITH NEI TO DISCUSS STAFF CLARIFICATIONS ON THE PREVIOUS ENDORSEMENT OF NEI 01-01 AND TO REVIEW THE DRAFT FRAMEWORK FOR QUALITATIVE ASSESSMENTS DATED: SEPTEMBER 5, 2017

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