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Clarification on Endorsement of Nuclear Energy Institute Guidance in Designing Digital Upgrades in Instrumentation and Control Systems

Comment On: NRC-2018-0044-0001
Clarification on Endorsement of Nuclear Energy Institute Guidance in Designing Digital Upgrades in Instrumentation and Control Systems

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Comment on FR Doc # 2018-04958

Submitter Information

Name: Chris Riedl

General Comment

TVA Comments on Draft RIS 2002-22, Supplement 1

Attachments

CNL-18-050 TVA Comments on Draft RIS 2002-22 Supplement 1

(8)

83 FR 11154
3/14/2018

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Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-18-050

March 29, 2018

83 FR 11154

May Ma
Office of Administration
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U.S. Nuclear Regulatory Commission
Washington, DC 20555–0001.

Subject: **Tennessee Valley Authority Comments on Draft Regulatory Issue Summary (RIS) 2002–22, Supplement 1, "Clarification on Endorsement of Nuclear Energy Institute Guidance in Designing Digital Upgrades in Instrumentation and Control Systems." (Docket ID NRC–2018–0044)**

References:
1) 83 FR 11154, "Clarification on Endorsement of Nuclear Energy Institute Guidance in Designing Digital Upgrades in Instrumentation and Control Systems," dated March 14, 2018
2) NEI letter to NRC, "NRC Draft Regulatory Issue Summary 2017-XX Supplement to RIS 2002-22 (Docket ID: NRC- 2018–0044)," dated March 27, 2018

In Reference 1, the U.S. Nuclear Regulatory Commission (NRC) requested comments on the subject draft Regulatory Issue Summary (RIS) 2002–22, Supplement 1, "Clarification on Endorsement of Nuclear Energy Institute Guidance in Designing Digital Upgrades in Instrumentation and Control Systems."

In Reference 2, the Nuclear Energy Institute (NEI) provided consolidated member comments and a proposed revision to the draft RIS supplement.

Tennessee Valley Authority (TVA) endorses the NEI comments and the proposed revision to the draft RIS. The enclosure to this letter includes additional TVA comments and clarifications.

There are no new regulatory commitments made in this letter. Please address any questions regarding this correspondence to Chris Riedl at 423-751-3835.

Respectfully,

J. W. Shea
Digitally signed by J. W. Shea
DN: cn=J. W. Shea, o=Tennessee Valley Authority, ou=Nuclear Licensing, email=jwshea@tva.gov, c=US
Date: 2018.03.29 16:47:13 -04'00'

J. W. Shea
Vice President, Nuclear Regulatory Affairs and Support Services

Enclosure
cc: See Page 2

Enclosure: TVA Comments on Draft Regulatory Issue Summary (RIS) 2002–22, Supplement 1, "Clarification on Endorsement of Nuclear Energy Institute Guidance in Designing Digital Upgrades in Instrumentation and Control Systems" (Docket NRC–2018–0044)

cc: (Enclosure)

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Enclosure

TVA Comments on Draft Regulatory Issue Summary (RIS) 2002–22, Supplement 1, "Clarification on Endorsement of Nuclear Energy Institute Guidance in Designing Digital Upgrades in Instrumentation and Control Systems" (Docket NRC–2018–0044)

RIS Section	Page No.	Comment
Summary of Issue	3 of 5	Tennessee Valley Authority (TVA) agrees with the recommendation from the Nuclear Energy Institute (NEI), and would like to emphasize that this RIS should maintain balanced language regarding the benefits versus risks of digital upgrades, so that licensees will make effective choices to continue the significant safety and reliability benefits that have been realized from digital upgrades, and not be deterred from incorporating digital designs.
Attachment, Section 1	1 of 17	TVA agrees with the recommendation from NEI, and would like to clarify that qualitative assessment and dependability evaluations are not interchangeable terms. Dependability evaluations are evaluations that support the qualitative assessment. Particularly for changes already in process, it should be noted that a qualitative assessment is not necessarily a single document, but may be reflected within several referenced documents or language in the 10 CFR 50.59 evaluation.
Attachment, Section 2.1, Likelihood Thresholds, 10 CFR 50.59(c)(2)(i)	3 of 17	TVA agrees with the recommendation from NEI, and would like to suggest that the steam generator example be replaced with a more applicable example using a digital instrumentation and control (I&C) function.
Attachment, Section 2.1, Likelihood Thresholds, 10 CFR 50.59(c)(2)(ii)	4 of 17	TVA agrees with the recommendation from NEI, and would like to suggest that if the NEI recommendation is not adopted that the "sufficiently low" consideration should be applied only to common cause failure (CCF) probability. For 10 CFR 50.59 question 2, the change must not introduce more than a minimal increase in the malfunction likelihood. Because question 2 is not really about CCF, the "sufficiently low criteria" should not be applied.

Enclosure

RIS Section	Page No.	Comment
Attachment, Section 3	5 of 17	TVA agrees with the recommendation from NEI, and would like to emphasize the need for clarity to avoid aversion to making digital upgrades. If the NEI recommendation is not implemented, this section should specifically clarify: 1) all digital upgrades combine design functions (multi hardware into software design functions) - functions of concern are FSAR design functions 2) "create a CCF vulnerability" as the term is very subjective and requires clarification 3) creating new failure modes is the issue, not combining functions 4) if a potential vulnerability can be mitigated, a qualitative assessment should be acceptable 5) input/output state analysis - provide a reference for this type of testing or clarify. Is this black box, just testing input vs outputs and not internal state testing?
Attachment, Section 3.1.3	8 of 17	TVA agrees with the recommendation from NEI to replace section 3.1.3, and would like to emphasize that regarding the last paragraph on page 8, the "referenced design" is problematic for operating history. Licensees will often not be able to obtain specific details of the referenced design, for example, when obtaining aggregate failure data from vendors, as specific design features are often related to individually identifiable information that is not publicly shared. Additionally, the reference to "common cause failures" should actually refer to failures in general, not just CCFs.
Attachment, Table 1	9 of 17	TVA agrees with the recommendation from NEI to replace Table 1, and would like to emphasize the importance of clear, precise language to ensure effective application and implementation of qualitative assessments for digital upgrades according to safety function and classification (safety or non-safety related).
Attachment, Section 4.2	11 of 17	TVA agrees with the recommendation from NEI to delete Section 4 in its entirety. If Section 4.2 text is retained, it should acknowledge that using identical software in independent divisions does result in a minuscule reduction of independence. Section 4.2 should provide allowance that if the likelihood of failure is sufficiently low, that minor reduction in independence would not require prior NRC approval.
Attachment, Section 4.3	11 of 17	TVA agrees with the recommendation from NEI to delete section 4 in its entirety. If Section 4.3 text is retained, the reference to "procedures" should be clarified as to what procedures are being referred to because new procedure coping actions for a CCF would be out of scope of this RIS.