



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 22, 2023

MEMORANDUM TO: Steven Lynch, Chief
Advanced Reactor Policy Branch
Division of Advanced Reactors and Non-power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

FROM: Michael Orenak, Project Manager
Advanced Reactor Licensing Branch 1
Division of Advanced Reactors and Non-power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

A handwritten signature in black ink that reads "Michael Orenak".

Signed by Orenak, Michael
on 02/22/23

SUBJECT: SUMMARY OF THE SEPTEMBER 13, 2022, PUBLIC
MEETING TO DISCUSS THE U.S. NUCLEAR REGULATORY
COMMISSION STAFF COMMENTS ON THE DRAFT TIRICE
GUIDANCE DOCUMENT (EPID N-2022-ADV-0004)

On September 13, 2022, a public meeting was held to discuss the U.S. Nuclear Regulatory Commission (NRC) staff comments on the Revision D of the guidance document, "Technology Inclusive Risk Informed Change Evaluation (TIRICE) for Non-Light Water Reactors (non-LWR): Industry Guidance for the Evaluation of Changes to a Facility or Procedures and Conducting Tests or Experiments Applicable to Facilities Utilizing Nuclear Energy Institute (NEI) 18-04 and NEI 21-07." This guidance is proposed to be applied by reactor licensees using a risk-informed, performance-based licensing strategy outlined in NEI 18-04, Revision 1, "Risk-Informed Performance-Based Guidance for non-LWR Licensing Basis Development." Revision D of the TIRICE guidance document was submitted to the NRC staff on August 26, 2022 and can be found in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML22333B087. The NRC staff provided comments to industry on Revision D of the TIRICE guidance document on September 7, 2022, and those comments can be found at ML22252A142. The NEI 18-04, Revision 1, can be found at ML19241A336. The NEI 21-07, Revision 1, "Technology Inclusive Guidance for Non-Light Water Reactors Safety Analysis Report Content for Applicants Utilizing NEI 18-04 Methodology," can be found at ML21250A378.

The public meeting notice and agenda are available at ML22255A176. The single industry presentation slide is available at ML22333B091. The Enclosure provides the list of meeting attendees.

Meeting Summary

After introductions, the discussion of the NRC staff comments provided in the September 7, 2022, document commenced, proceeding from the beginning of the document. The first major discussion topic centered around the terms "affirmative safety case," "safety case," and "licensing case," stemming from comment A4. The industry, led by Mike Tschiltz, Brandon Chisholm, and Steve Nesbit, stated that it is using the term consistently throughout the

document. Industry stated that “affirmative safety case” is defined in Section 1.3 of NEI 21-07, Revision 1. The NRC staff then stated that there may be a discussion or clarification of the use of these terms in the forthcoming draft Regulatory Guide 1404, “Guidance for a Technology-Inclusive Content of Application Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Advanced Reactors.”

The next discussion centered around comment A12. The NRC contractors stated that the terms “design basis function” and “design function” are not consistently defined in the document. Specifically, the issue is how, for the purpose of evaluating changes, the two terms encompass the terms Required Safety Functions, risk significant functions, and functions needed for adequate defense-in-depth. The industry stated that it will examine the guidance document to review how the terms are defined and used in the application of screening criteria. Industry also clarified that there is a hierarchy of structures, systems, and components (SSCs) when applying screening and change evaluation guidance, so all SSCs should not be treated the same. Industry stated that it would also go back and review how the term “design basis function” and “design function” are defined and used throughout the document. The NRC staff noted that it had a better understanding of industry’s intention regarding the change process associated with the use of these terms and that a future revision to the document clarifying these terms and the change process associated with them would be helpful.

There was a discussion regarding comment A22 which involved how a change to an input parameter/assumption in an analysis would be addressed in the screening and evaluation criteria. The industry made the point that how a change to an input parameter would be addressed in the guidance is dependent on how that parameter was used in the analysis. Industry presented its single slide “Input Parameter versus Method of Evaluation” to explain its position. Industry stated that this approach came straight from the NRC-endorsed NEI 96-07, “Guidelines for 10 CFR 50.59 Evaluations,” can be found at ML003686043. The NRC staff raised questions regarding how changes to input parameters used in the probabilistic risk assessment (PRA) (e.g., evaluation of licensing basis events) would be addressed (also refer to comment A23). Industry stated that it was evaluating how to address this issue and that further discussion was necessary. The NRC staff stated that it would review industry’s slide and include this topic in further internal discussion.

The next discussion involved comment A37 regarding the basis for allowing 90 days for temporary modifications. The industry provided an explanation for that length of time. Industry stated that this time limit was negotiated between the NRC and the industry many years ago to identify when a modification is temporary (i.e., does not require a license amendment) versus requiring a license amendment to implement. The basis for 90 days was that commercial nuclear power plants are often on a 12- or 13-week maintenance cycle, which corresponds to roughly 90 days.

For comment A38, industry stated that the selected words were cut and pasted from NEI 96-07, Revision 1. The industry stated that confirming consistency with the updated final safety analysis report (UFSAR) is not appropriate. When a problem occurs at a plant (a leak, valve failure, etc.), the SSC is isolated, tagged out, and entered into the corrective action program. The plant’s Technical Specifications are then reviewed. During the time that the corrective action is taking place, the plant state likely does not meet the UFSAR. Therefore, consistency with the UFSAR is not appropriate in this case.

For comment A47, the industry stated that all of the examples in this document should be considered a work in progress, so it did not fully address the NRC comment. For the next

document revision, the examples will be enhanced with additional description and detail, and more examples will be provided.

The next discussion revolved around comment A48 and what constituted an “adverse change to a method of evaluation.” The industry referred to its slide, “Input Parameter versus Method of Evaluation,” and stated that Section 4.2.1.3 describes how to screen changes to methods of evaluation and that it would clarify some of the examples presented in the guidance.

For comment A53, the industry stated that any change that would cause a beyond design basis event to move into the design basis event range or a design basis event to move into the anticipated operational occurrence range would trip criterion (d). The industry stated that it will enhance criterion (d) to make it clear that these situations would apply.

For comment A54, the NRC staff stated that the current practice is to use percentage decreases in margin between the analysis and acceptance criteria as a criterion for evaluating changes requiring the NRC staff review. The industry responded by pointing out the ability to use a more absolute risk measure, such as that provided by the risk-significant region of the frequency-consequence (F-C) target figure, as part of the Licensing Modernization Project (LMP) methodology in NEI 18-04, Revision 1.

For comment A55, the NRC staff questioned how the TIRICE guidance could address circumstances where a licensee had adopted a design goal (e.g., substitute F-C target to support alternative emergency planning zones). The industry responded that this topic was being deferred pending additional projects under consideration by the U.S. Department of Energy.

For comment A56 regarding what “other events” were considered applicable to criterion (c), the industry stated that the criterion was worded to address other (non-DBA) deterministic events evaluated in the safety analysis. Industry stated that it sees how the current wording can be confusing and committed to clarifying it in the upcoming revision.

For comment A75, the industry stated that it needs to be clearer regarding what situations are covered under criterion (g). The NRC staff asked if industry agreed with the comment and industry responded that, yes, the situation provided for in the comment would trip criterion (g).

At the end of the technical discussion, the NRC contractors asked the industry to describe its philosophy to address the criteria in Section 4.3.1 of NEI 96-07, “Does the Activity Result in More than a Minimal Increase in the Likelihood of an Occurrence of a Malfunction of an SSC Important to Safety?” The industry stated that this criterion is focused on the relative increase of a malfunction, and there is a LMP equivalent to that criterion. For LMP, changes that matter are the ones that trigger the two risk significance criteria in NEI 18-04, Revision 1. Industry stated that criterion (f) was developed to address this topic, which addresses changes in the classification of an SSC from non-risk significant to risk-significant. The industry noted that in the TIRICE tabletops, a change of failure probability can significantly increase, but the risk of the event changes little.

The NRC staff then discussed its two most important outcomes from the review of the guidance document. First, the NRC staff would like the guidance document to clearly articulate how the terms “design basis function” and “design function” are defined and how changes to “design basis functions” and “design functions” are evaluated (related to comment A12). Additionally, the NRC staff would like the industry to address how changes to input parameters/assumptions

used in the PRA are evaluated either in this (10 CFR 50.59) alternative change evaluation process or via separate guidance developed to specifically address changes to PRA (relates to discussion on comments A22 and A23 above).

At the very end of the meeting, the industry went over its future plans and schedule. The industry plans on addressing the NRC comments and generate a subsequent revision of the draft guidance document. The industry will then send Revision E to the NRC staff for information and subsequently have another public meeting late September or early October 2022 to discuss both its responses to the NRC staff comments to Revision D and the new revision. The industry will then finalize the NEI TIRICE guidance document and submit to the NRC staff for formal review and endorsement sometime in December 2022.

Enclosure:

List of Attendees

CONTACT: Michael Orenak, NRR/DANU/UAL 1
301-415-3229

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THE U.S. NUCLEAR REGULATORY COMMISSION STAFF COMMENTS ON
THE DRAFT TIRICE GUIDANCE DOCUMENT (EPID N-2022-ADV-0004)
DATED: FEBRUARY 22, 2023

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Eric Bowman, COMM/OCMAC

Scott Bussey, OCHCO

Pete Lee, NSIR

ADAMS Accession No.:**Package: ML22333B088****Letter: ML22333B086****Draft: ML22333B087****Email: ML22333B091****Slide: ML22333B091****NRC-001**

OFFICE	NRR/DANU/UAL1/PM	NRR/DANU/UAL1/LA	NRR/DANU/UARP/BC	NRR/DANU/UAL1/PM
NAME	MOrenak	DGreene	SLynch	MOrenak
DATE	12/21/2022	12/22/2022	2/22/2022	2/22/2022

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List of Attendees

PUBLIC MEETING TO DISCUSS THE U.S. NUCLEAR REGULATORY COMMISSION STAFF COMMENTS ON THE DRAFT TIRICE GUIDANCE DOCUMENT

Tuesday, September 13, 2022

Name	Organization
Michael Orenak	U.S. Nuclear Regulatory Commission (NRC)
Bill Reckley	NRC
Chris VanWert	NRC
Joe Sebrosky	NRC
Amy Cubbage	NRC
Scott Tonsfeldt	NRC
Eric Bowman	NRC
John Segala	NRC
Ian Jung	NRC
Scott Bussey	NRC
Pete Lee	NRC
Chris Chwasz	Idaho National Laboratory (INL)
Thomas Hicks	INL
Tom King	INL
Roger Mattson	INL
Michael Tschiltz	Consultant to Southern Company
Steve Nesbit	LMNT Consulting
Justin Wheat	Enercon
Karl Fleming	KNF Consulting Services, LLC.
Pete Lablond	LeBlond & Associates
Brandon Chisolm	Southern Company Services
Steve Vaughn	X Energy, LLC
Rob Burg	EPM, Inc.
Jana Bergman	Curtiss-Wright
Ewa Muzikova	USNC