



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

July 1, 2021

MEMORANDUM TO: John P. Segala, Chief
Advanced Reactor Policy Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

A handwritten signature in black ink, appearing to read "J. Sebrosky".

Signed by Sebrosky, Joseph
on 07/01/21

FROM: Joseph M. Sebrosky, Senior Project Manager
Advanced Reactor Policy Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF JUNE 23, 2021, PUBLIC MEETING TO DISCUSS
TECHNOLOGY INCLUSIVE CONTENT OF APPLICATION PROJECT

On June 23, 2021, the U.S. Nuclear Regulatory Commission (NRC) staff held a public meeting with stakeholders, to discuss the technology inclusive content of application project (TICAP). The meeting notice is available in the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession No. ML21173A335, and the presentation slides are available at ADAMS Accession No. ML21173A262. The enclosure to this summary provides the attendees for the meeting as captured by Microsoft Teams.

The purpose of this meeting was to discuss with the nuclear industry issues related to the draft TICAP guidance document for Safety Analysis Report (SAR) content for an advanced reactor application based on the licensing modernization project. The draft TICAP guidance document is available in ADAMS at Accession No. ML21106A013. The June 23, 2021, meeting was a follow-on meeting to public TICAP workshops held on:

- May 11, 2021 (meeting summary available in ADAMS at Accession No. ML21132A295)
- May 19, 2021 (meeting summary available in ADAMS at Accession No. ML21154A290)
- May 26, 2021 (meeting summary available in ADAMS at Accession No. ML21158A223)

During these workshops the industry and NRC staff worked through 23 issues that were identified prior to the workshops. The meeting summaries note the outcome of the issues discussed during the workshops. During the May 26, 2021, workshop industry and the staff

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identified the need to have additional discussion on two of the 23 issues: (1) principal design criteria (PDC) which was identified as issued #6 in the previous workshops, and (2) reliability and capability targets which was identified as issue #9 in the previous workshops.

Principal Design Criteria

During the May 26, 2021, workshop the staff stated that the industry's TICAP approach to establishing the required functional design criteria (RFDC) as the PDC are too narrow and for example would not capture important design criteria outside the scope of the licensing modernization project (LMP) process. During the May 26, 2021, workshop industry stated that it did not believe the intent of NEI 18-04, Revision 1, "Risk-Informed Performance-Based Technology Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development" (ADAMS Accession No. ML19241A336) was to impose deterministic PDC on a risk informed, performance-based process or to develop PDC that are outside the scope of LMP.

The June 23, 2021, meeting continued the discussion from the May 23, 2021, workshop. The staff provided several examples of advanced reactor design criteria (ARDC) from regulatory guide (RG) 1.232, "Developing Principal Design Criteria for Non-Light Water Reactors" (ADAMS Accession No. ML17325A611) that the staff believed the LMP process might not properly identify as PDC. The ARDC examples that the staff provided included: ARDC 10, "Reactor design;" ARDC 26, "Reactivity control systems;" ARDC 35, "Emergency core cooling system;" ARDC 39, "Inspection of containment heat removal system;" ARDC 40, "Testing of containment heat removal system;" and ARDC 62, "Prevention of criticality in fuel storage and handling."

Industry's position is that the LMP-based safety case provides a more complete basis for a facility's safety based on the specifics of the unique design and provides the same type of information described as PDC in the introductory text of Title 10 of the *Code of Federal Regulations* (CFR) Part 50 Appendix A. Industry's proposed solutions during the meeting did not include changes to the industry draft TICAP guidance document.

The staff stated that it would consider industry's position and noted that it needed to consider both the technical and legal aspects of industry's position. The staff noted that providing feedback to industry on its position prior to industry's target date of a revised TICAP guidance document in mid-July 2021, would be challenging.

Reliability and Capability Targets

The NRC staff noted that industry's draft TICAP guidance document does not appear to be consistent with NEI 18-04, Rev. 1, in that the reliability and capability targets are not proposed to be captured in the safety analysis report (SAR). From the staff's perspective the SAR should describe reliability targets and performance requirements used as input to the probabilistic risk assessment and for structures, systems and components (SSCs) that were used to develop the selection of special treatment requirements (e.g., programmatic actions used to maintain performance within the design reliability targets). The staff noted this information is important to capture in the SAR and in some cases could also be captured as part of technical specification requirements.

Industry provided an example of how the reliability and capability targets are developed and proposed changes to the industry developed TICAP guidance document. Industry proposed a change to TICAP Chapter 8, "Plant Programs," that would describe the programs which capture and control the SSC-level reliability and capability targets, and incorporated them by reference

in the SAR, and that would be subject to the 10 CFR 50.59 change control process. The staff stated that it would review industry's proposed change to the TICAP guidance document and will provide feedback after it has had time to review the proposed change.

The meeting concluded with a discussion of the schedule for development of TICAP guidance documents. Highlights of this discussion included industry providing a revision to the April 15, 2015, TICAP guidance document in mid-July 2021, the staff performing a high-level review of this document, and industry providing a "revision 0," to the TICAP guidance document in a Nuclear Energy Institute format in late August 2021. Interactions with the Advisory Committee on Reactor Safeguards (ACRS) were discussed and included possible interactions with the ACRS Future Plant Designs Subcommittee in late July 2021, and October of 2021.

Enclosure: Attendance List

SUBJECT: SUMMARY OF JUNE 23, 2021, PUBLIC MEETING TO DISCUSS TECHNOLOGY INCLUSIVE CONTENT OF APPLICATION PROJECT DATED: July 1, 2021

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| OFFICE | NRR/DANU/UARP/PM | NRR/DANU/UARP/BC | NRR/DANU/UARP/PM |
| NAME | JSebrosky | JSegala | JSebrosky |
| DATE | 07/01/2021 | 07/01/2021 | 07/01/2021 |

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**June 23, 2021, Public Meeting to Discuss
Technology Inclusive Content of Application Project
Attendance List***

| NAME | AFFILIATION | NAME | AFFILIATION |
|----------------------------|----------------------|------------------------|------------------------------------|
| Robert Taylor | NRC/NRR | Amir Afzali | Southern Company |
| Nathan Sanfilippo | NRC/NRR/DANU | Brandon Chisholm | Southern Company |
| Martin Stutzke | NRC/NRR/DANU | Mike Tschiltz | Nuclear Energy Institute (NEI) |
| Dayna Dority | NRC/NRR/DANU | Benjamin Holtzman | NEI |
| John Segala | NRC/NRR/DANU/UARP | Ed Wallace | GNBC Associates |
| William Reckley | NRC/NRR/DANU/UARP | Cyril Draffin | US Nuclear Industry Council |
| Maryam Khan | NRC/NRR/DANU/UARP | Steven Nesbit | LMNT Consulting |
| Eric Oesterle | NRC/NRR/DANU/UARP | George Flanagan | Oak Ridge National Lab |
| Arlon Costa | NRC/NRR/DANU/UARP | Frank Akstulewicz | A to Z Reactor Consulting Services |
| Juan Uribe | NRC/NRR/DANU/UARP | Dennis Henneke | GE Power |
| Amy Cabbage | NRC/NRR/DANU/UARP | Travis Chapman | X-Energy |
| Joe Sebrosky | NRC/NRR/DANU/UARP | Raymond Wang | X-Energy |
| Nan Valliere | NRC/NRR/DANU/UARP | Tom King | Idaho National Lab (INL) |
| Jordan Hoellman | NRC/NRR/DANU/UARP | Tom Hicks | INL |
| Stephen Philpott | NRC/NRR/DANU/UARP | Jordan Hagaman | Kairos Power |
| Dawnmathews Kalathiveettil | NRC/NRR/DANU/UARP | Peter Hastings | Kairos Power |
| Adrian Muniz | NRC/NRR/DANU/UARL | William Womack | Kairos Power |
| Jan Mazza | NRC/NRR/DANU/UARL | Darrell Gardner | Kairos Power |
| Alexandra Siwy | NRC/NRR/DANU/UART | Farshid Shahrokhi | Not Available (NA) |
| Michael Orenak | NRC/NRR/DANU/UART | Lance Sterling | NA |
| Imtiaz Madni | NRC/NRR/DANU/UART | Michael Mayfield | NA |
| Michelle Hart | NRC/NRR/DANU/UART | Karl Fleming | NA |
| Timothy Lupold | NRC/NRR/DANU/UART | Jana Bergman | NA |
| Hanh Phan | NRC/NRR/DANU/UART | Rob Burg | NA |
| Chris Van Wert | NRC/NRR/DANU/UART | Maxine Keefe | NA |
| Boyce Travis | NRC/NRR/DANU/UART | Adam Stein | NA |
| Tim Drzewiecki | NRC/NRR/DANU/UART | Richard Paese | NA |
| Alexander Chereskin | NRC/NRR/DANU/UART | Harry Liao | NA |
| Christian Cowdrey | NRC/NRR/DRO/IOLB | Srinivasan Makuteswara | NA |
| Jesse Seymour | NRC/NRR/DRO/IOLB/HFT | Scott Nelson | NA |
| Brian Green | NRC/NRR/DRO/IOLB/HFT | Tammy Morin | NA |
| David Desaulniers | NRC/NRR/DRO | Jason Wheelwright | NA |
| Ed Miller | NRC/NRR/DORL | Mike Keller | NA |
| Steven Vitto | NRC/NSIR/DP/CP/RSB | Jason Andrus | NA |

| NAME | AFFILIATION | NAME | AFFILIATION |
|-------------------|---------------------------|----------------|--------------------|
| Shakur Walker | NRC/COMM/DW | Ted Garrish | NA |
| Marcia Carpentier | NRC/OGC | Luke McSweeney | NA |
| Cameron Tarry | NRC/OGC | Scott Ferrara | NA |
| Derek Widmayer | NRC/ACRS | Kurt Harris | NA |
| Scott Bussey | NRC/OCHCO/ADHRTD/ RTTB | Zee St Hilaire | NA |
| Andrew Zach | EPW | Patrick White | NA |
| Daniel Schroeder | NA | Matthew Lund | NA |
| Frank Schaaf | NA | Fred Silady | NA |

* Attendance list based on Microsoft Teams Participant list. List does not include 8 individuals that connected via phone.