



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

January 11, 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

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

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

Signed by Sebrosky
on 01/11/21

SUBJECT: SUMMARY OF DECEMBER 10, 2020, PUBLIC MEETING TO
DISCUSS TECHNOLOGY INCLUSIVE CONTENT OF
APPLICATION PROJECT, ADVANCED REACTOR CONTENT
OF APPLICATION PROJECT, AND APPLICABILITY OF
REGULATIONS TO NON-LIGHT WATER REACTORS

On December 10, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff held a Category 2 public meeting with stakeholders, to discuss the technology inclusive content of application project (TICAP), the advanced reactor content of application project (ARCAP) and applicability of regulations to non-light water reactors (non-LWRs). The meeting notice is available in the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession No. ML20344A139, and the presentation slides are available at ADAMS Accession No. ML20344A057. The Enclosure to this summary provides the attendees for the meeting as captured by Microsoft Teams.

Meeting Highlights

Technology Inclusive Content of Application Project and Advanced Reactor Content of Application Project

In preparations for the December 10, 2020, public meeting the NRC staff developed the following four documents to support the meeting (the first three documents provided in the list below are publicly available in ADAMS at Accession No. ML20316A013 and the last document is publicly available in ADAMS at Accession No. ML20321A326).

- A document titled, "Comments on Industry-Developed TICAP Annotated Outline." The purpose of this document was to provide NRC staff comments on the TICAP outline discussed during an October 22, 2020, meeting (available at ADAMS Accession No. ML20294A382).

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- A document titled “Draft Concept for Updated TICAP-ARCAP Combined Outline.” The purpose of this document was to provide initial concepts for how the industry-developed TICAP final safety analysis report (FSAR) outline discussed during an October 22, 2020, meeting (available at ADAMS Accession No. ML20294A382) could be merged with the NRC staff developed ARCAP outline found at ADAMS Accession No. ML20107J565.
- The staff developed ARCAP draft Chapter 2, “Site Information.” This document includes a proposal to limit the amount of material in safety analysis report (SAR) Chapter 2 to that which is necessary for establishing safety significant design parameters and performing the safety analysis, along with its supporting bases.
- A document regarding considerations for the expected level of detail in an application that used the licensing modernization project approach.

Regarding industry’s TICAP annotated outline and how the industry-developed TICAP annotated outline and NRC staff-developed ARCAP annotated outline could be integrated, the industry and the staff agreed that more dialogue was needed. In general, there was agreement that a different organization of the FSAR portion of an application for an LMP-based approach vice an FSAR organization for a non-LMP based application was appropriate. It was recognized that additional discussion was needed to clearly outline the scope of what guidance will be provided through the TICAP guidance and what guidance will be provided via ARCAP. For example, industry indicated that because validation of analytical codes is not addressed in Nuclear Energy Institute (NEI) 18-04, Revision 1, “Risk-Informed Performance-Based Technology Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development,” as endorsed by the NRC, industry does not intend to provide detailed guidance on this topic as part of TICAP. The staff indicated this is an area that would be addressed as part of the ARCAP guidance it is developing.

In addition, the staff and industry agreed that additional discussion was needed to develop guidance for the expected level of detail in an application. There was agreement that a graded approach that leads to more information being provided for safety-related structures, systems, and components and less information for non-safety related structures, systems and components (SSCs) with special treatment was appropriate. However, the level of detail for SSCs that serve a defense-in-depth function was recognized as an area that needed additional discussions.

The staff provided an overview of draft ARCAP Chapter 2, “Site Information.” It was noted that additional discussion is appropriate to determine where this information should be placed in the FSAR since it does not appear as an area in the draft TICAP outline discussed during the meeting.

Industry provided an update on the status of the four tabletops that are scheduled over the next several months including:

- TerraPower Molten Chloride Reactor Experiment – a less than 1 Megawatt (MW) thermal pool-type molten salt reactor
- X-energy Xe-100 – an 80 MW electric pebble bed high temperature gas cooled reactor
- Westinghouse eVinci – a heat pipe microreactor

- GE-Hitachi Versatile Test Reactor – a 300 MW thermal pool-type sodium-cooled fast reactor Industry took an action to continue to develop the schedules for the four tabletop exercises discussed during the meeting and to keep the NRC staff informed when the dates for NRC observation of the four tabletop exercises are identified.

Applicability of Regulations to Non-Light Water Reactors

The purpose of this portion of the meeting was to discuss a document titled, “NRC Staff Draft White Paper - Analysis of Applicability of NRC Regulations for Non-Light Water Reactors,” dated September 2020, available at ADAMS Accession No. ML20241A017. Prior to the meeting the Nuclear Energy Institute provided a letter dated October 30, 2020, titled “NEI Input on Analysis of Applicability of NRC Regulations for Non-Light Water Reactors.” NEI’s cover letter and associated enclosure are available in ADAMS at Accession No. ML20308A660, and Accession No. ML2030308A559, respectively.

As part of the discussion, NRC staff noted that future interactions would be beneficial in resolving the issues discussed in the slides. The NRC staff stated that the slides reflected a need to provide a durable and clear licensing basis using a decision-making process that was not arbitrary. Industry and NRC staff agreed that the applicability being discussed was on a generic basis, and that clarity in exemption requests would be beneficial for non-LWR applicants. Further, NRC staff pointed out that the industry slides appeared to take out of context the information found in the Staff Requirements Memorandum for SECY-19-0036, “Application of the Single Failure Criterion to Nuscale Power LLC’s Inadvertent Actuation Block Valves,” (ADAMS Accession No. ML19183A408) and Commission Order CLI-20-03, “Florida Power & Light Co. (Turkey Point Nuclear Generating Units 3 and 4),” (ADAMS Accession No. ML20114E147).

The staff actions from this portion of the meeting included:

- Consider revisions to the draft white paper to provide some clarity on the level of detail needed for an application to address the applicability of regulations for non-light water reactors.
- Consider providing a template for exemptions for items found in Table 2 of the draft white paper.
- Consider discussing at a future stakeholder meeting what the timeline may be for the staff update and next steps to issue a revised white paper.

NEI actions from this portion of the meeting included:

- Identify examples of specific regulations where the NRC staff position in the draft white paper is not clear. NEI will identify the regulations that need clarification and in the near term will provide a schedule for this feedback.

Enclosure:

Attendance List

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ADAMS Accession No.: ML21006A414**NRC-001**

OFFICE	NRR/DANU/UARP/PM	NRR/DANU/UART	NRR/DANU/UARP/BC	NRR/DANU/UARP/PM
NAME	JSebrosky	BTravis	JSegala	JSebrosky
DATE	1/07/2021	01/07/2021	01/08/2021	01/11/2021

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December 10, 2020, Public Meeting to Discuss Technology Inclusive Content of
Application Project, Advanced Reactor Content of Application Project, and Applicability of
Regulations to Non-Light Water Reactors
Attendance List*

NAME	AFFILIATION	NAME	AFFILIATION
Robert Taylor	NRC/NRR	Marc Nichol	Nuclear Energy Institute (NEI)
Mohamed Shams	NRC/NRR/DANU	Kati Austgen	NEI
Brian Smith	NRC/NRR/DANU	Mike Tschiltz	NEI
Dayna Dority	NRC/NRR/DANU	Everett Redmond	NEI
John Segala	NRC/NRR/DANU/UARP	Cyril Draffin	US Nuclear Industry Council
Maryam Khan	NRC/NRR/DANU/UARP	Ed Wallace	GNBC Associates
Eric Oesterle	NRC/NRR/DANU/UARP	Steven Nesbit	LMNT Consulting
Arlon Costa	NRC/NRR/DANU/UARP	Frank Akstulewicz	A to Z Reactor Consulting Services
Juan Uribe	NRC/NRR/DANU/UARP	Darrell Gardner	Kairos Power
Amy Cubbage	NRC/NRR/DANU/UARP	Farshid Shahrokhi	Framatome
Joe Sebrosky	NRC/NRR/DANU/UARP	Jason Christensen	INL
Nan Valliere	NRC/NRR/DANU/UARP	Ross Moore	Oklo
Jordan Hoellman	NRC/NRR/DANU/UARP	Junaid Razvi	Ultra Safe Nuclear Corporation
Stephen Philpott	NRC/NRR/DANU/UARP	Rob Burg	Engineering Planning and Management Inc.
Jim Kinsey	Idaho National Laboratory (INL)	Brian Johnson	TerraPower
Tom Hicks	INL	Travis Chapman	X-Energy
Tom King	INL	Benjamin Cipiti	Sandia National Lab
Christopher Chwasz	INL	Christopher Courtenay	NA (Not available)
Amir Afzali	Southern Company	Thomas Braudt	NA
Brandon Chisholm	Southern Nuclear	Richard Paese	NA
Jason Redd	Southern Nuclear	Rebecca Norris	NA
Donna Williams	NRC/NRR/DANU UARL	Andrew Arend	NA
Stu Magruder	NRC/NRR/DANU/UARL	David Holcomb	NA
Richard Rivera	NRC/NRR/DANU/UARL	Don Williams	NA

Mallecia Sutton	NRC/NRR/DANU/UARL	Jim Tomkins	NA
Michelle Hayes	NRC/NRR/DANU/UART	Marty O'Neill	NA
Michelle Hart	NRC/NRR/DANU/UART	Mike Keller	NA
Marilyn Diaz Maldonado	NRC/NMSS/DFM/FFLB	Niko McMurray	NA
Ian Jung	NRC/NRR/DANU/UART	Pete Gaillard	NA
Chris Van Wert	NRC/NRR/DANU/UART	Ross Koningstein	NA
Boyce Travis	NRC/NRR/DANU/UART	Steve Burns	NA
Samuel Cuadrado de Jesus	NRC/NRR/DANU/UART	Steve Kraft	NA
Robert Weisman	NRC/OGC	Tom Roberts	NA
Julie Ezell	NRC/OGC	Gilbert Brown	NA
Brooke Clark	NRC/OGC	Taninaka Hiroshi	NA
Sheldon Clark	NRC/OGC	William Horak	NA
Susan Vrahoretis	NRC/OGC	Steve Schilthelm	NA
Marcia Carpentier	NRC/OGC	Chet Austin Sigmon	NA
Maxine Keefe	NRC/OGC	M. Sorouche	NA
Barbara Hayes	NRC/NRR/DEX/EXHB	Stephen Burdick	NA
Mike Lee	NRC/NRR/DEX/EXHB	Derek Widmayer	NRC/ACRS
Ken See	NRC/NRR/DEX/EXHB	Amitava Ghosh	NRC/NRR/DEX/ESEB
Kevin Quinlan	NRC/NRR/DEX/EXHB	Craig Harbuck	NRC/NRR/DSS/STSB
Jenise Thompson	NRC/NRR/DEX/EXHB	Pete Lee	NRC/NSIR/DPCP/RSB
Yuan Cheng	NRC/NRR/DEX/EXHB	Eric Schrader	NRC/NSIR/DPR/POB
Jason White	NRC/NRR/DEX/EXHB	Jose Pires	NRC/RES/DE
Cliff Munson	NRC/NRR/DEX	Robert Schaaf	NRC/NMSS/REFS/ERNRB
Kamal Manoly	NRC/NRR/DEX	Shakur Walker	NRC/COMM/OCMDW

* Attendance list based on Microsoft Teams Participant list. List does not include 26 individuals that connected via phone.