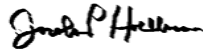




UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 17, 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: Jordan P. Hoellman, Project Manager  Signed by Hoellman, Jordan
Advanced Reactor Policy Branch on 08/17/21
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MAY 27, 2021, ADVANCED REACTOR
STAKEHOLDER PUBLIC MEETING

On May 27, 2021, the U.S. Nuclear Regulatory Commission (NRC) held an Information Meeting with Question and Answer public meeting with industry stakeholders, including the Nuclear Energy Institute (NEI) and the U.S. Nuclear Industry Council, to discuss ongoing initiatives related to the development and licensing of non-light-water reactors (non-LWRs). The staff has posted the meeting notice in the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession No. ML21134A182 and the presentation slides at ADAMS Accession No. ML21146A347. Enclosure 1 lists the meeting attendees who participated remotely.

The NRC staff provided an overview of the Advanced Reactor Integrated Schedule of Activities on the NRC's public website at <https://www.nrc.gov/reactors/new-reactors/advanced/details.html#advSumISR>. The staff specifically noted the activities that have recently been completed, updated, or added since the April 15, 2021, advanced reactor stakeholder meeting.

The NRC staff provided an overview of the American Society of Mechanical Engineers Section III, Division 5, "High Temperature Reactors," design tool software, which was developed under contract by Argonne National Laboratory. The software is publicly available, can be used by non-LWR designers to verify construction rules for high-temperature components used in non-LWR designs, and enables the staff to perform confirmatory analysis. The staff discussed the design checks provided by the software and described how to use and obtain the software. Stakeholders asked if the software included graphitic materials, and the staff clarified that the software only addresses Class A metallic materials at this time.

Enclosure:
List of Attendees

CONTACT: Jordan Hoellman, NRR/DANU
301-415-5481

The NRC staff provided a summary of the key revisions to its draft white paper, Preapplication Engagement to Optimize Advanced Reactor Application Reviews (ADAMS Accession No. ML21145A106), which was revised since the January 21, 2021, advanced reactor stakeholder meeting. The staff briefly discussed an overview of pre-application engagement program, the various licensing submittals supported by pre-application engagement, and the benefits of pre-application engagement. The staff noted that the revisions provided additional clarifications in the areas of topical reports, fuel qualification and testing, safety and accident analyses methodologies and associated validation. The staff clarified that the white paper will be included as an appendix to the advanced reactor content of application project (ARCAP) guidance document. Stakeholders asked clarifying questions regarding how the six month schedule reduction was determined and how the process would apply to a Part 50 applicant verses a Part 52 applicant.

The NRC staff provided an overview of the Advanced Reactor Construction Inspection and Oversight (ARCOP) framework, noting that the framework will consider the existing reactor oversight process and the construction reactor oversight process. The ARCOP framework is intended to employ new and innovative thinking and consequence and safety-significance based approaches for the construction inspection and oversight of small modular reactors and advanced non-LWRs and will leverage knowledge and experience from internal and external sources to inform and develop the ARCOP process. The staff noted that the effort is being supported by an external contractor with subject matter experts in construction inspection, operational oversight, and advanced reactor fuels and technologies to develop a draft of the framework over the next six to nine months. Stakeholders noted that they are encouraged by the staff's efforts and what was presented on the slides and asked clarifying questions related to whether the staff is considering research and test reactor frameworks or those used at U.S. Department of Energy research facilities.

The NRC staff provided an update on the advanced reactor exports working group's efforts, which uses innovation to keep pace with the fast moving developments of advanced reactors to ensure that the NRC is prepared to license the export of these technologies in an independent, predictable, and efficient way. The staff provided an overview of the working group's mandate, design types studies, and some of the conclusions and recommendations, noting that the staff is interested in stakeholder input as to whether a rulemaking or a regulatory guide would be the preferred path forward to clarify the provisions for advanced reactor exports under Part 110. The staff also noted that the working group's public report would be issued soon. Stakeholders asked clarifying questions about the assessment of proliferation resistance for tristructural isotropic fuel particles and whether additional requirements would be needed for high assay low enriched uranium fuel.

The NRC staff provided an overview of its efforts to establish a graded probabilistic risk assessment (PRA) to support advanced reactor licensing, noting that preliminary proposed rule language for Part 53 would require a to support the development of the safety analyses for an advanced reactor application and that some stakeholders have expressed concerns with performing a PRA for designs that may have significantly lower power levels and source terms than large LWRs. The staff discussed the phases of its approach to develop a graded PRA for advanced reactors and the goals of the staff's effort. The staff noted that they are looking for opportunities to use bounding, conservative, and/or qualitative assessments to establish a PRA's scope, level of detail, degree of plant representation, and/or level of peer review commensurate with how the PRA will be used in risk-informed decision-making. The staff noted that they wanted to reach out to stakeholders early in the development of this effort and were interested in stakeholder's views of this approach.

NEI provided some initial thoughts on the graded approach to PRA in support of Part 53, including the role of PRA in developing a risk-informed licensing basis. NEI covered some benefits of a deterministic approach versus the benefits of performing a PRA. NEI described in detail examples of attributes that require flexibility in the role of the PRA based on the range of licensing bases approaches. Stakeholders provided comments supportive of a graded PRA approach and asked clarifying questions about the assessment of uncertainties and when more specifics would be available. One stakeholder suggested that seismic margin analysis may be a good example of graded PRA that the staff should consider.

The NRC staff provided an overview of the ARCAP risk-informed technical specifications (TS) interim staff guidance (ISG). The staff gave a brief overview of the technology-inclusive content of application project (TICAP) and ARCAP and walked through the applicability of the guidance and related guidance that informed the development of the draft ISG. The staff provided a detailed discussion of the differences between the ISG and existing TS regulations and how the ISG would be used. Stakeholders asked questions related to non-licensing modernization project based TS guidance and how the proposed ISG affects systems credited for beyond design basis events.

The meeting ended with an open discussion. The NRC requested feedback about how these meetings can be more engaging and how to increase participation by prospective applicants. The staff discussed the various upcoming public meetings focused on advanced reactor initiatives, including Part 53. The next advanced reactors stakeholder meeting would be scheduled for July 15, 2021.

SUBJECT: SUMMARY OF MAY 27, 2021, ADVANCED REACTOR STAKEHOLDER
PUBLIC MEETING DATED: AUGUST 17, 2021

DISTRIBUTION:

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JSegala, NRR

JHoellman, NRR

ADAMS Accession No.: ML21223A277

NRC-001

OFFICE	NRR/DANU/UARP/PM	NRR/DANU/UARP/BC	NRR/DANU/UARP/PM
NAME	JHoellman	JSegala	JHoellman
DATE	8/16/2021	8/16/2021	8/17/2021

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**PUBLIC MEETING
U.S. NUCLEAR REGULATORY COMMISSION
Thursday, May 27, 2021
10:00 a.m. – 3:00 p.m. EST**

List of Attendees* (on phone)
Hoellman, Jordan
Glowacki, Brian
O'Driscoll, James
Unknown User
Drzewiecki, Timothy
Andrew Dyszel
Coyne, Kevin
Poehler, Jeffrey
Kati Austgen (NEI) (Guest)
Schiele, Raymond Joseph
Henderson, Ryan Donald
Lance Sterling (Guest)
Beasley, Benjamin
St Hilaire, Zee
Mazza, Jan
Xu, Jim
Taylor, Robert
Cyril Draffin (USNIC) (Guest)
Schaaf, Robert
Stutzke, Martin
Oesterle, Eric
Willingham, Laura
Rob Burg
Paese, Richard M
frank akstulewicz (TEUSA) (Guest)
Lupold, Timothy
Hansing, Nicholas
Reckley, William
Reed, Beth
Segala, John

Enclosure

Hart, Michelle
O'Banion (Watford), Margaret
Uribe, Juan
Alan Jelalian
Sastre Fuente, Eduardo
Lauron, Carolyn
Tarry, Cameron
Siwy, Alexandra
Widmayer, Derek
Hayes, Michelle
Beall, Bob
Kalathiveettil, Dawnmathews
Philpott, Stephen
Keefe, Maxine
Tom Braudt (Guest)
Roche-Rivera, Robert
Magruder, Stewart
Phan, Hanh
Walker, Shakur
Erwin, Kenneth
Wang, Weijun
Jung, Ian
Giacinto, Joseph
Jordan Hagaman (Kairos Power) (Guest)
Ross Moore (Guest)
Wright, Megan
Smith, Maxwell
Ruth Horton (Guest)
Deb Luchsinger (NuScale Power) (Guest)
Dority, Dayna
Williams, Donna
Van Wert, Christopher
Darrell Gardner (Kairos Power) (Guest)
Palmrose, Donald
Chereskin, Alexander

Jim C. Kinsey
Rebecca Norris (Guest)
Travis, Boyce
Rades, Paul
Lindsay Robinson (Guest)
John Bolin (Guest)
Hoffman, Keith
Bussey, Scott
mayfieldmichael921
Vechioli Feliciano, Lucieann
Barnhurst, Daniel
lloyd generette (Guest)
mike keller (Guest)
Michelle Conner (Guest)
seunghoon AHn (게스트) (Guest)
Luke McSweeney (Guest)
George Cicotte (Guest)
Gascot Lozada, Ramon
Carpentier, Marcia
Doug True
Merrifield, Jeffrey S.
Taneja, Dinesh
Cuadrado de Jesus, Samuel
Chowdhury, Prosanta
Prabhat (Guest)
Costa, Arlon
Wagner, Katie
Peter Hastings (Guest)
Niko McMurray (ClearPath) (Guest)
Sanfilippo, Nathan
Smith - NRR, Brian
Bob Kurth (Guest)
Shams, Mohamed
Edwin Lyman
Natalie Houghtalen (ClearPath) (Guest)

George Wilson (Guest)
Valliere, Nanette
Bruce Weir (Guest)
Manoharan, Archie
Vrahoretis, Susan
Caroline - Oklo (Guest)
Gupta (Guest)
Licon, Ethan
Kapitz, Jon K.
Scott E. Ferrara
Alex Pavlak (Guest)
Krsek, Robert
Mayros, Lauren
Gary Becker, NuScale (Guest)
Habighorst, Peter
Schrader, Eric
Reisi Fard, Mehdi
Ezell, Julie
guptap (Guest)
Leigh Ford
Armstrong, Kenneth
Adam Stein (Guest)
Neuhausen, Alissa
Tom King (Guest)
Robert Budnitz (Guest)
Steve Vaughn (X-energy) (Guest)
Stuart Lewis (Guest)
Grady, Anne-Marie
Vasavada, Shilp
Matt Denman (Kairos Power) (Guest)
Hyslop, JS
Haessler, Richard
Grabaskas, Dave
Matt Warner (Guest)
Rizza, Hailey

Drew Peebles (Kairos Power) (Guest)
Humberstone, Matthew
Nakanishi, Tony
Harry Liao (Guest)
Glen Lawson (X-energy) (Guest)
Drew Nigh, X-energy (Guest)
cindy williams (Guest)
Weisman, Bob
Cédric (Guest)
Ashcraft, Joseph
Feltus, Madeline
Steven Nesbit
Raymond Wang (Guest)
Hoellman, Jordan
Glowacki, Brian
O'Driscoll, James
Unknown User
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Coyne, Kevin
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Lance Sterling (Guest)
Beasley, Benjamin
St Hilaire, Zee
Mazza, Jan
Xu, Jim

* Attendance list based on Microsoft Teams Participant list. List does not include 11 individuals that connected via phone.