



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

July 24, 2020

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 */RA/*
Advanced Reactor Policy Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF JUNE 18, 2020, ADVANCED REACTOR
STAKEHOLDER PUBLIC MEETING

On June 18, 2020, the U.S. Nuclear Regulatory Commission (NRC) held a Category 2 public meeting with industry stakeholders, including the Nuclear Energy Institute (NEI) and the U.S. Nuclear Industry Council (USNIC), to discuss ongoing initiatives related to the development and licensing of non-light-water reactors (non-LWRs or advanced reactors). The staff has posted the meeting notice in the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession No. ML20170A455 and the presentation slides at Accession No. ML20169A590. Enclosure 1 lists the meeting attendees who participated remotely.

NRC staff provided an overview of the Advanced Reactor Integrated Schedule of Activities that was recently placed on the NRC's public website at <https://www.nrc.gov/reactors/new-reactors/advanced.html>. The staff noted that they are working to update the integrated schedule as they are identified, including annual fees. Industry stakeholders noted that the integrated schedule provides a good snapshot of the timelines for the NRC's advanced reactor activities.

The staff discussed the NRC endorsement of the advanced non-LWR Probabilistic Risk Assessment (PRA) standard and provided an update on the NRC's review and endorsement schedule. The staff discussed that they are preparing to endorse the non-LWR PRA standard through a new regulatory guide (RG), similar to RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities." The staff anticipates publishing the draft RG for public comment by Summer 2021 and the final RG

Enclosure:
List of Attendees

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by Fall 2022. The staff discussed conducting public meetings approximately every three to six months beginning tentatively in July 2020. The staff discussed its plans to review and endorse NEI 20-09, "Performance of PRA Peer Reviews Using the ASME/ANS Advanced Non-LWR Standard," concurrently with the non-LWR PRA standard. The staff discussed how the standard and RG are envisioned to be used to develop future risk-informed applications. Industry representatives asked clarifying questions regarding the use of the Licensing Modernization Project (LMP) for structure, system, and component (SSC) classification. The staff noted that an applicant can determine SSC classification through the implementation of LMP.

NEI provided an overview of NEI 20-09, noting that it is largely based on NEI 17-07 (LWR PRA Peer Review Guidance) and retains key aspects of LWR peer reviews. NEI discussed adjustments made to the non-LWR PRA Peer Review Guidance to reflect the differing standard structure, changes to wording on qualifications to reflect novel designs, and replacing "on-site review" with "final dedicated meetings" based on anticipated design reviews. NEI noted that they plan to conduct a pilot peer review of Kairos Power using NEI 20-09 and that a future revision will be developed based on feedback from the Kairos Power pilot, feedback from NRC, and changes in the final version of the non-LWR PRA standard. The staff stressed that early engagement between NEI, applicants, and the staff will be important so that there is a clear understanding of the intent of NEI 20-09.

The staff provided a subsequent discussion on promoting preapplication participation, which was discussed at the May 7, 2020, advanced reactor stakeholder meeting. The staff noted the various types of preapplication interactions and the expected value in terms of reliability, efficiency, and transparency. The staff discussed the current generic schedules and how preapplication interactions can substantially streamline NRC's review, consistent with implementing a staged licensing approach required by the Nuclear Energy Innovation and Modernization Act (NEIMA). The staff noted that the document they are developing would specify key preapplication activities, including topics for topical reports, white papers, and meetings. The staff and industry representatives discussed what would be attractive to potential applicants, recognizing that a readiness review is more beneficial to the staff than to an applicant. Industry representatives noted that real and substantive improvements to reduce review time and opportunities to receive important NRC feedback. The staff and industry discussed the use of regulatory engagement plans to understand and align on the expected outcome of certain interactions. Industry representatives discussed uncertainty in preapplication interactions when all design details are not finalized. Industry noted that getting alignment with staff and a regulatory decision on items that are more finalized, without scope creep into areas where there are less details, would also be attractive.

NEI discussed annual fee regulations for non-LWRs. NEI noted that the current NRC fee requirements under Title 10 of the Code of Federal Regulations (10 CFR) Part 170 and Part 171 are not technology-inclusive and only apply to LWRs. NEI discussed that addressing annual fees for non-LWRs is a timely consideration given a non-LWR application in front of NRC and more developers in pre-application discussions with the NRC. NEI noted that their preferred annual fee approach is to expand the variable annual fees structure established for light-water small modular reactors (SMRs) to include non-LWRs. NEI stated that microreactors require further consideration and suggested that fees should be much lower than the variable fee rule minimum since fees have a disproportionate impact on a microreactor and the cost of regulatory service for a microreactor is expected to be very small. NEI discussed that longer-term considerations for annual fee rulemakings should be based on operating experience of SMRs and non-LWRs. USNIC provided comments in support of expanding the

SMR variable fee rule for non-LWRs and suggested that annual fees for microreactors could be comparable to research and test reactors, given the regulatory service is expected to be small and disproportionate.

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 next advanced reactors stakeholder meeting would be scheduled in August 2020. The staff also reminded stakeholders of the workshop on Enhancing Risk-Informed and Performance-Based Seismic Safety for Advanced Non-Light Water Reactors scheduled for September 2-3, 2020.

SUBJECT: SUMMARY OF JUNE 18, 2020, ADVANCED REACTOR STAKEHOLDER PUBLIC MEETING DATED: JULY 24, 2020

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JSegala, NRR

JHoellman, NRR

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| OFFICE | NRR/DANU/UARP/PM* | NRR/DANU/UARP/BC* |
| NAME | JHoellman | JSegala |
| DATE | 7/27/2020 | 7/24/2020 |

OFFICIAL RECORD COPY

PUBLIC MEETING
U.S. NUCLEAR REGULATORY COMMISSION
Thursday, June 18, 2020
10:00 a.m. – 2:00 p.m.

| List of Attendees (on phone) | |
|-------------------------------------|--|
| Name | Organization |
| Amy Cabbage | U.S. Nuclear Regulatory Commission (NRC) |
| John Segala | NRC |
| Jordan Hoellman | NRC |
| Hanh Phan | NRC |
| Jo Jacobs | NRC |
| Christy Galster | NRC |
| Bill Reckley | NRC |
| Donna Williams | NRC |
| Eric Oesterle | NRC |
| Ben Beasley | NRC |
| Martin Stutzke | NRC |
| Juan Uribe | NRC |
| Victoria Anderson | NRC |
| Michelle Gonzalez | NRC |
| Tim Lupold | NRC |
| Adrian Muniz | NRC |
| Kati Austgen | Nuclear Energy Institute (NEI) |
| Alex Runner | Oklo, Inc |
| Alice Caponiti | US Department of Energy (DOE) |
| Alyssa Beasley | NRC |
| Amir Afzali | Southern Nuclear |
| Anders Gilbertson | NRC |
| Andrea Gennetta | F&P Global Platts |
| Andrew Barto | NRC |
| Anthony Rossi | NRC |
| Antonio Barrett | NRC |
| Bob Fitzpatrick | NRC |
| Brandon Chisholm | Southern Company |
| Brandon Waits | Southern Company |
| Brian Glowacki | NRC |
| Brian Henderson | Boeing Company |
| Brian Smith | NRC |

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|-------------------|-------------------------------|
| Brian Thomas | NRC |
| Bruce McDowell | PNNL |
| Carol Moyer | NRC |
| Caroline Walse | NRC |
| Charles Mahon | DroJect Management Institute |
| Chris Sterreagan | NRC |
| Chris Van Wert | NRC |
| Christine Galfter | NRC |
| Cyril Draffin | US Nuclear Industry Council |
| Dan Barss | NRC |
| Daniel Carls | Terrestrial Energy US |
| Daniel Miller | Public Citizen |
| Darrell Gardner | Kairos Power |
| Dave Goodwin | TNNO |
| Dave Grabaskas | Argonne National Lab |
| David Desaulniers | NRC |
| David Holcomb | Oak Ridge National Laboratory |
| Deb Ludhinger | NuScale Power |
| Derek Widmayer | NRC |
| Don Helton | NASA |
| Donald Palmrose | NRC |
| Drew Peebles | Kairos Power |
| Edward File | Elithium Industry USA |
| Edwin Lyman | Union of Concerned Scientists |
| Farshid Shahrokhi | Framatome |
| Frank Schaaf | ASME Code Member |
| George Flanagan | Oak Ridge National Laboratory |
| Grace Kim | NRC |
| Arlon Costa | NRC |
| Ian Jung | NRC |
| Ismael Garcia | NRC |
| Jack Cushing | NRC |
| Jacob Zimmerman | NRC |
| James Rubenstone | NRC |
| James Saldarini | Advanced Reactor Concepts |
| James Tompkins | Kairos Power |
| Jan Mazza | NRC |
| Jana Bergman | Curtiss Wright |
| Jason Read | Southern Nuclear |
| Jason Shay | NRC |
| Jean Wall | Jon Wnj |
| Jeff Gabor | Jensen Hughes |

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|----------------------|--------------------------------|
| Jennifer Meservy | Senator Cra |
| Jim Hammelman | NRC |
| Jim Kinsey | Idaho National Laboratory |
| Joe Giacinto | NRC |
| John Kutsch | Thorium Energy Alliance |
| John Monninger | NRC |
| Jonathan Marcano | NRC |
| Jordan Hagaman | Kairos Power |
| Joseph Anderson | NRC |
| Julia Gregorian | Hogan Lovelos |
| Jun Wang | Jun Wang |
| Keith Consani | Member of the Public |
| Ken Erwin | NRC |
| Kenneth Armstrong | NRC |
| Kim Webber | NRC |
| Kurt Harris | Flibe Energy Inc |
| Lars Jorgensen | Thorcon US |
| Laura Schwartz | ITTA |
| Laura Willingham | NRC |
| Leanne Galanek | NEI |
| Lee Grzeck | Duke Energy |
| Louise Lund | NRC |
| Madaline Feltus | DOE |
| Marilyn Kray | Exelon |
| Marilyn Sears | NRC |
| Mark Nichol | NEI |
| Meraj Rahini | NRC |
| Michelle Albert | NRC |
| Michelle Catts | GE-Hitachi |
| Michelle Hart | NRC |
| Mike Poore | ORNL |
| Missy Mehdireisifard | NRC |
| Nan Vallierie | NRC |
| Nicholas McMurray | Clearpath |
| Patrick White | MIT |
| Paul Keutelian | Radiant |
| Peter Hastings | Kairos Power |
| Ranaad Samanka | Brookhaven National Laboratory |
| Richard Chang | NRC |
| Rick Paese | Westinghouse |
| Rob Taylor | NRC |
| Robert Rocke-Rivera | NRC |
| Robert Schaaf | NRC |

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|-----------------|----------------------------|
| Russ Felts | NRC |
| Scott Duffey | NRC |
| Shelby Wales | Southern Company |
| Stephen Vurdick | Idaho National Laboratory |
| Steven Vitto | NRC |
| Stu Magruder | NRC |
| Tammy Morin | Holtec International |
| Tom Cuadrado | NRC |
| Travis Chapman | X-Energy |
| Voida Via | NRC |
| Wendy Reid | NRC |
| William Horak | Acadia National Laboratory |
| Yen Phung | State University of Energy |