



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

December 21, 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 NOVEMBER 5, 2020, ADVANCED REACTOR
STAKEHOLDER PUBLIC MEETING

On November 5, 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. ML20309A954 and the presentation slides at Accession No. ML20309A878. 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 or that have been added since the October 1, 2020, advanced reactors stakeholder meeting.

The NRC staff provided an overview of its recent draft white paper, Preapplication Engagement to Optimize Application Reviews (ADAMS Accession No. ML20281A761). The purpose of the draft white paper is (1) to provide information to advanced reactor developers on the benefits of robust preapplication engagement in optimizing application reviews, (2) to encourage preapplication interactions to provide stability and predictability in the licensing process, and (3) to propose a set of preapplication activities that, if fully executed, would enable the staff to offer more predictable and shorter schedules, among other benefits. The staff applied a graded approach to identify key safety and environmental licensing areas for preapplication

Enclosure:
List of Attendees

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engagement. NEI noted that there is a shared responsibility between the NRC and applicant for maintaining the review schedule and asked questions related to how environmental issues could be resolved prior to the application since the National Environmental Policy Act (NEPA) is processed based. The staff discussed that while issues may not be resolved in preapplication space, preapplication engagement on environmental issues would allow the staff to assess the proposed sites for uniquenesses that could have impacts to the schedule and would allow the NRC to interact with other agencies to determine what may be needed in advance of the application submittal. USNIC noted contingencies related to information transfer and NRC reviewer turnover between preapplication engagements and application submittal that should be considered.

The NRC staff summarized the Advisory Committee on Reactor Safeguards (ACRS) letter, Observations and Lessons-Learned from ACRS Licensing Reviews Relevant to Future Advanced Reactor Applications (ADAMS Accession No. ML20267A655). The five conclusions and recommendations in the letter included:

1. A cross-cutting approach should be adopted by the staff and ACRS for conducting effective safety reviews of future applications, focused by initial chapter-by-chapter reviews that identify open items and significant cross-cutting design issues;
2. To avoid significant delays late in the review process, critical topical reports should be submitted and reviewed early, particularly methodology reports that underpin the design bases and accident analyses for advanced reactors;
3. Staff should ensure that the completeness of proposed new reactor designs is sufficient to demonstrate that all structures, systems, and components (SSCs) important-to-safety are appropriately identified and to support requested exemptions and waivers from the General Design Criteria;
4. The time period of transient and accident analyses should be continued to the extent necessary to ensure that applicants demonstrate an effective and reliable means to place the plant in a safe, stable condition, with no ongoing degradation; and
5. The staff should develop guidance for the application of critical deterministic safety examinations, hazards analyses, and risk-informed methods, as well as the need for additional demonstration testing, which could include a prototype. These complementary tools would provide a more effective licensing framework for advanced reactor design applications and their review.

The Union of Concerned Scientists (UCS) noted that the staff needs to seriously consider the ACRS letter and take a comprehensive look at accident analyses for all future licensing application reviews and in the development of Part 53. NEI noted that the industry-led Technology-Inclusive Content of Application Project (TICAP) goes a long way to address some of the ACRS recommendations and cautioned that a prototype licensing process for non-LWRs should not be the default staff position because data is available to support uncertainties.

The NRC staff provided an overview of SECY-20-0093, Policy and Licensing Considerations Related to Micro-Reactors (ADAMS Accession No. ML20254A363), which (1) informs the Commission of licensing topics related to nuclear micro-reactors that may necessitate departures from current regulations, related guidance, and past precedents; (2) identifies potential policy issues related to licensing micro-reactors; and (3) describes the staff's approach to facilitate licensing submittals for near-term and future deployment and operation of micro-reactors. The topics addressed in SECY-20-0093 include security requirements; emergency preparedness; staffing, training, and qualification requirements; autonomous and remote operations; regulatory oversight; aircraft impact assessment; annual fee structure; manufacturing licenses and transportation; population-related siting considerations; and environmental considerations. The staff noted that they will continue to engage stakeholders on specific topics identified in SECY-20-0093 and that micro-reactor attributes will be considered in the development of technology-inclusive guidance and Part 53. Related to security requirements, UCS noted that security for non-power reactors may not be adequate since some non-power reactors are located in high population areas. NEI noted that they appreciate the staff's consideration of NEI's white paper (ADAMS Accession No. ML19319C449), dated November 13, 2019.

The NRC staff discussed its plans to develop a report to Congress to complete a rulemaking to establish a technology-inclusive regulatory framework for advanced reactors (i.e. Part 53) and to enhance NRC expertise related to advanced reactor technologies, required by Section 103(e) of the Nuclear Energy Innovation and Modernization Act (NEIMA). The staff discussed the evaluations required by NEIMA and its plans to develop the report with inputs from the Part 53 rulemaking plan (SECY-20-0032), associated staff requirements memorandum (SRM), and 30-day letter, as well as inputs from our activities under implementation action plan (IAP) Strategy 1, Staff Development and Knowledge Management, and Strategy 2, Analytical Tools. The staff will continue to have extensive stakeholder interactions in dedicated public meetings on Part 53, as well as regular engagement with the ACRS, and these discussions will inform the development of the report. As part of these interactions, the staff will release preliminary proposed rule language for public discussion. USNIC noted that the staff is making good progress on Part 53 and that discussions will continue at dedicated Part 53 public meetings.

The NRC staff provided an update on its activities related to the NRC's review and endorsement of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) Section III, Division 5, "High Temperature Reactors." The staff noted that they are currently receiving the final contractor reports that provide expert recommendation on the technical adequacy of ASME Section III, Division 5 and are drafting the NUREG and draft regulatory guide (RG) endorsing ASME Section III, Division 5. The staff expects the NUREG and draft RG to be published for public comment by April 2021.

The NRC staff discussed considerations for streamlining NRC endorsement of ASME Section III, Division 1 to reduce regulatory burden and to increase latitude and flexibility to new reactor applicants. The staff discussed the current practice and streamlining considerations that the staff is internally brainstorming. The staff noted that they would engage with stakeholders further on this topic. Stakeholders expressed interest in international harmonization of codes and standards. The staff noted that they understood the comment and importance of internationally recognized codes and standards.

The NRC staff provided an update on Price-Anderson Act and financial protection considerations for advanced reactors in support of the staff's periodic report to Congress required by December 31, 2021. The staff noted that significant discussions on financial

protection requirements were held during the November 2, 2017, periodic advanced reactor stakeholders meeting (ADAMS Accession No. ML17319A210), and that the staff is currently preparing the report to Congress and related Commission paper with plans to complete in 2021. The staff noted that Commission Policy is that advanced reactors will provide the same degree of protection as current reactors, with expectations of enhanced margins of safety and that no immediate actions are called for to address the possibility that reduced risks posed by advanced reactors might warrant changes to the current insurance and liability requirements established by the Price-Anderson Act. No opposing views were provided by stakeholders.

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 January 2021.

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PUBLIC MEETING DATED: December 21, 2020

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JSegala, NRR

JHoellman, NRR

ADAMS Accession No.: ML20349A330

***via e-mail**

NRC-001

OFFICE	NRR/DANU/UARP/PM*	NRR/DANU/UARP/BC*	NRR/DANU/UARP/PM*
NAME	JHoellman	JSegala	JHoellman
DATE	12/21/2020	12/21/2020	12/21/2020

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PUBLIC MEETING
U.S. NUCLEAR REGULATORY COMMISSION
Thursday, November 5, 2020
10:00 a.m. – 2:00 p.m.

List of Attendees* (on phone)	
Blank Fields = Indecipherable Information	
Name	Organization
Amy Cabbage	U.S. Nuclear Regulatory Commission (NRC)
John Segala	NRC
Jordan Hoellman	NRC
Hanh Phan	NRC
Jo Jacobs	NRC
Bill Reckley	NRC
Jason Schaperow	NRC
Eric Oesterle	NRC
Ben Beasley	NRC
Martin Stutzke	NRC
Juan Uribe	NRC
Tim Lupold	NRC
Anthony Rossi	NRC
Adrian Muniz	NRC
Mo Shams	NRC
Fred Miller	NRC
Mai Henderson	NRC
Shawn Harwell	NRC
John Tappert	NRC
Donna Williams	NRC
Peyton Doub	NRC
Emil Tabakov	NRC
Robert Weisman	NRC
Tom Boyce	NRC
Marcia Carpentier	NRC
Nathan Sanfilippo	NRC
Salman Haq	NRC
Shakur Walker	NRC
Dan Barnhurst	NRC
Samuel Cuadrado de Jesus	NRC
Megan Wright	NRC
James Rubenstone	NRC

Kenneth Armstrong	NRC
Pete Lee	NRC
Ian Tseng	NRC
Brian Thomas	NRC
Weijun Wang	NRC
Lucieann Vechioli	NRC
Eric Bowman	NRC
Michael Snodderly	NRC
Steven Vitto	NRC
Patricia Vokoun	NRC
Robert Taylor	NRC
Ian Jung	NRC
Eric Schrader	NRC
Sunwoo Park	NRC
David Desaulniers	NRC
Dan Barss	NRC
Jessie Quichocho	NRC
Richard Rivera	NRC
Russell Felts	NRC
Angela Buford	NRC
Maxine Segarnick	NRC
Dayna Dority	NRC
John Nakoski	NRC
Antonio Barrett	NRC
Jack Cushing	NRC
Brian Smith	NRC
Wendy Reed	NRC
Jan Mazza	NRC
Kamal Manoly	NRC
Maryam Khan	NRC
Michael Spencer	NRC
Chris Van Wert	NRC
Laura Willingham	NRC
Monika Coflin	NRC
Damaris Marcano	NRC
Joe Ashcraft	NRC
Jesse Seymour	NRC
Arlon Costa	NRC
Ricardo Torres	NRC
Steve Bajorek	NRC
Bruce Musico	NRC
Brian Green	NRC
Julie Ezell	NRC

Stu Magruder	NRC
Jeff Schmidt	NRC
Mallecia Sutton	NRC
Andrew Carrera	NRC
Ken Erwin	NRC
Tamara Bloomer	NRC
Christian Cowdrey	NRC
Michelle Hart	NRC
Nanette Valliere	NRC
James Hammelman	NRC
Stephen Philpott	NRC
Donald Palmrose	NRC
Lucas Kyriazidis	NRC
Boyce Travis	NRC
Kati Austgen	Nuclear Energy Institute (NEI)
Marc Nichol	NEI
Everett Redmond	NEI
Cyril Draffin	U.S. Nuclear Industry Council (USNIC)
Ed Lyman	Union of Concerned Scientists (UCS)
Curt Horomanski	
Steven Kraft	
Francis Akstulewicz	A to Z Reactor Consulting Services
Farshid Shahrokhi	Framatome
Jana Bergman	
Steve Schlithelm	BWXT
Travis Chapman	
Christopher Courtenay	
Steve Nesbit	
Drew Peebles	Kairos Power
Peter Hastings	Kairos Power
Razvi Junaid	
Dr. Deb Luchsinger	
Tom Bergman	
Brian Glowacki	
Daniel Carleton	
Hayden Brundage	
Niko McMurray	ClearPath
Clint Medlock	Southern Nuclear
Jason Redd	Southern Nuclear
George Wadkins	GE Power
Martin Owens	GE Power
Jerud	
Ross Moore	Oklo

Alex Renner	Oklo
Ashley Meredith	
Pete Gaillard	TerraPower
Alexus Willis	
Richard Paese	Westinghouse
Robert Schaaf	
Lee Grzeck	
Marty O'Neill	
Dan Stout	
Dimitri	
William Horak	
Rebecca Norris	
Kurt Harris	
Steve Burns	
Lane Howard	
Sophie Holiday	
Alfred Hathaway	
Robert Krsek	
Mike Keller	
Jean Trefethen	
Ed Pheil	
Benjamin Carmichael	
Billy Blaney	
William Freebairn	
Tammy Morin	
Weiju Ren	Oak Ridge National Laboratory
Tanju Sofu	Argonne National Laboratory
Judi Greenwald	
Staci Wheeler	
Keith Consani	
Matt G	

* Attendance list based on Microsoft Teams Participant list. List does not include 35 individuals that connected via phone.