



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

May 15, 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 APRIL 2, 2020, ADVANCED REACTOR
STAKEHOLDER PUBLIC MEETING

On April 2, 2020, the U.S. Nuclear Regulatory Commission (NRC) held a Category 2 public meeting with stakeholders, including the Nuclear Energy Institute (NEI) and the US 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. ML20092N362 and the presentation slides at Accession No. ML20092L465. Enclosure 1 lists the meeting attendees who participated remotely.

NRC staff provided an overview on the status of environmental activities in preparations for advanced reactor environmental reviews, including the interim staff guidance (ISG) for the environmental reviews of microreactors, the generic environmental impact statement (GEIS) for advanced reactors, guidance on addressing Table S-3 of Title 10 of the Code of Federal Regulations (10 CFR) 51.51 and Table S-4 of 10 CFR 51.51 for non-LWRs, and NRC comments on the NEI white paper on streamlining NRC environmental reviews. The staff noted that additional presentation material regarding the ISG can be found at ADAMS Accession No. ML20094G271. The staff discussed that SECY-20-0020, "Results of Exploratory Process for Developing a Generic Environmental Impact Statement for the Construction and Operation of Advanced Nuclear Reactors" (ADAMS Accession No. ML20052D175), dated February 28, 2020, informed the Commission that the staff would develop a GEIS for advanced reactors to define the scope of the environmental effects of the construction and operation of advanced reactors and identify generic and site-specific environmental impacts. The staff discussed the efficiencies that can be gained with an advanced reactor GEIS and that the tentative schedule for developing the GEIS is two years, with the Final GEIS being issued in May 2022.

Enclosure:
List of Attendees

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The staff discussed the Pacific Northwest National Laboratory (PNNL) papers (ADAMS Accession Nos. ML20084L390 and ML20076G075) to address Table S-3 of 10 CFR 51.51 and Table S-4 of 10 CFR 51.51 for non-LWRs, which provide technology-neutral methodologies for use by an applicant and by NRC staff to determine the environmental impacts from the fuel cycle and from the transportation of fuel and wastes for all types of non-LWRs. The staff stated that these topics will continue to be discussed in future advanced reactor stakeholder meetings. The staff noted that they encourage preapplication meetings under 10 CFR 51.40 to discuss these topics for a specific design or site. The staff discussed their comments on NEI's white paper regarding recommendations for streamlining NRC environmental reviews for advanced reactors. NEI's six recommendations discussed in the white paper are: (1) allow for the flexibility to use environmental assessments (EAs) and categorical exclusions, (2) increase the use of GEISs, (3) incorporate existing environmental analyses into a project's EA or EIS, (4) flexibility to use an applicant's environmental report (ER) as the basis for the draft EA or EIS, (5) reduce unnecessary burden in alternative site analysis, and (6) increase efficiency of environmental reviews. The staff noted that they have been pursuing multiple ways to streamline environmental reviews, including the ISG for environmental reviews of microreactors and the GEIS for advanced reactors.

NEI provided an overview of their comments on the Council on Environmental Quality (CEQ) notice of proposed rulemaking on potential revisions to the implementing regulations for the National Environmental Policy Act (NEPA), which NEI noted are consistent with NEI's white paper regarding recommendations for streamlining NRC environmental reviews for advanced reactors. NEI discussed the estimated timeline for the CEQ final rule being issued in October 2020, which requires agencies, such as the NRC, to develop or revise proposed procedures to implement the regulations in Parts 1500 through 1508 within 12 months (i.e. October 2021).

USNIC provided a discussion of the results of the USNIC survey of advanced nuclear developers on policy issues conducted in March 2020. USNIC noted the policy issues that have changed in importance level since the last survey was conducted. USNIC discussed that advanced reactor developers who responded to the survey indicate that licensing is being pursued in both the US and Canada and that the industry supports the efforts of the NRC and the Canadian Nuclear Safety Commission (CNSC) to align their regulatory review processes. USNIC discussed the survey results of other policy issues, including appropriate emergency planning zones, control room operators, refueling, appropriate NRC fees, and creation of a GEIS for advanced reactors, and the survey results related to applying for and receiving US Department of Energy (DOE) program awards.

The staff discussed readiness for advanced reactor fuel cycle licensing and transportation certification, including enrichment, fuel fabrication, transportation package certification, spent fuel storage, and material control and accounting (MC&A). The staff discussed that the regulations in 10 CFR Part 70 are adequate for the review of fuel enrichment and fabrication for technologies being developed at higher enrichments and that the staff continues to assess the regulatory framework to identify challenges and/or data needs. Specifically, the staff discussed ongoing efforts to conduct technical evaluations to assess necessary updates to guidance, including MC&A for Category II fuel cycle facilities and possible MC&A approaches for pebble bed reactors. Regarding transportation and storage activities, the staff discussed that they are proactively identifying potential technical challenges and information needs associated with the safe use of advanced reactor fuels in the areas of enrichment, fabrication, transport and storage. The staff noted that they expect some of the efforts related to accident tolerant fuel will benefit the licensing and certification of advanced reactor fuels.

The staff discussed the draft instrumentation and controls (I&C) Design Review Guide (DRG), which leverages the Design Specific Review Standard (DSRS) Chapter 7 framework while factoring in the lessons learned from new reactor reviews and provides guidance for the NRC staff to use in reviewing the I&C portions of applications for advanced non-LWRs within the bounds of existing regulations. The staff discussed that the DRG has been coordinated to align with the risk-informed, performance-based Licensing Modernization Project (LMP) framework and provides review guidance on all aspects of safety-significant I&C systems, which include safety-related I&C systems and I&C systems that are not safety-related but warrant special treatment. The staff noted that although the DRG aligns with the LMP framework, the DRG provides the flexibility for staff to perform I&C reviews for applications that do not implement the LMP framework. The staff discussed that the draft DRG will be issued for public and stakeholder comments within the next few weeks. The draft DRG was published on April 14, 2020 (85 FR 20725), with the public comment period closing on June 29, 2020.

The staff discussed Codes and Standards for advanced reactors under Implementation Action Plan (IAP) Strategy 4 to support the objective of enhancing non-LWR technical readiness and optimizing regulatory readiness. The staff discussed that they are actively participating in the development and use of consensus codes and standards across multiple standards development organizations (SDOs). The staff discussed the NRC Standards Forum to facilitate the identification of needed standards within the nuclear industry that are currently not being addressed by SDOs and to collaboratively accelerate their development. The staff noted that they continue to gather input from utility/vendors, SDOs, and other stakeholders on codes and standards needs and related near-term activities and that the next Standards Forum is scheduled for September 15, 2020.

The staff provided a discussion of financial qualification, Price-Anderson Act considerations, on-site insurance, and decommissioning. The staff noted that these have been topics in previous stakeholder meetings. Regarding financial qualifications, the staff discussed that SECY-18-0026, "Proposed Rule: Financial Qualifications Requirements for Reactor Licensing," dated March 15, 2018, noting that the applicant's Financial Capacity Plan will inform the NRC's review of whether the applicant appears to be financially qualified to engage in the proposed activities in accordance with the regulations. Regarding Price-Anderson Act considerations, the staff noted that, as discussed in previous stakeholder meetings, NRC is preparing a report to Congress. Regarding on-site insurance and decommissioning, the staff noted that these insurances are candidate for exemption requests with supporting analysis, as discussed in previous stakeholder meetings. Regarding annual fees, the staff noted that NRC's annual fee regulations were revised to address light-water small modular reactors (SMRs) and that the staff is initiating activities to expand the regulations to address non-LWRs. The staff sought stakeholder input to determine if additional near-term actions were needed. The staff and industry agreed that further discussions about annual fees would be beneficial.

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 was scheduled for May 7, 2020.

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MEETING DATED: MAY 15, 2020

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JHoellman, NRR

ADAMS Accession No.: ML20132A302 *via e-mail NRR-106

OFFICE	NRR/DANU/UARP/PM*	NRR/DANU/UARP/BC*
NAME	JHoellman	JSegala
DATE	5/12/2020	5/15/2020

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PUBLIC MEETING
U.S. NUCLEAR REGULATORY COMMISSION
Thursday, April 2, 2020
9:00 a.m. – 3:00 p.m.

List of Attendees (on phone)	
Name	Organization
Amy Cubbage	U.S. Nuclear Regulatory Commission (NRC)
Bill Reckley	NRC
Donald Palmrose	NRC
Jack Cushing	NRC
Jim Hammelman	NRC
Joe Sebrosky	NRC
Joe Ashcraft	NRC
John Segala	NRC
Jordan Hoellman	NRC
Kati Austgen	NEI
Ken Erwin	NRC
Louise Lund	NRC
Marlyn Diaz	NRC
Mallecia Sutton	NRC
Ricardo Torres	NRC
Shawn Harwell	NRC
Tom Boyce	NRC
Alex Hashimian	ANS
Alice Caponitti	Department of Energy
Alex Pavlak	Future of Energy Initiative
Alex Renner	OKLO
Alice Chung	NRC
Andrea Jennetta	S&P Global Platts
Andrea Kock	NRC
April Rice	Preferred Licensing Services
Arantsa Cuadra	Brookhaven National Lab
Ariel Bronstein	Morgan Lewis
Arlon Costa	NRC
Ben Carmichael	Southern Nuclear
Ben Eipiei	India National Labs
Benjamin Beasley	NRC
Bernie White	NRC
Bill Reckley	NRC
Bill Brown	University of MA Lowell
Bill Horak	Brookhaven National Laboratory

Enclosure

Bob Campbell	Baker Donelson
Bob Fitzpatrick	NRC
Brad Miller	NRC
Brad Williams	EPW
Brandon Wase	Southern Company
Brian Smith	NRC
Brian Thomas	NRC
Bruce Lupier	PNNL
Bruce McDowell	PNNL
Cameron Tarry	Clear Catheter
Charles Murray	NRC
Charles Rhodes	Xylene Power Ltd
Chris Colbert	New Scale
Chris Robinson	W-12 National Security Complex
Christian Marsul	Electric Power Research Institute
Christine King	INL
Cynthia Jones	NRC
Cyril Draffin	U.S. Nuclear Industry Council
Dale Fulton	Southern Nuclear
Daniel Carleton	Terrestrial Energy USA
Darrell Gardner	Kairos Power
Dave Goodman	PNNL
Dave Scheltown	BWXT
David Desaulniers	NRC
David Erown	Kamo Power
David Locksat	Indian National Lab
David Luxt	National Labs
David Pickett	SW Research Institute
David Rahn	NRC
Deb Luchsinger	NuScale
Derek Widmayer	NRC
Diana Li	Department of Energy
Dinesh Taneja	NRC
Don Chase	Curtiss-Wright
Don Midkif	Framatone
Don Wolf	ARC
Donald Palmrose	NRC
Donna Williams	NRC
Drew Blackwell	Enercon Services
Ed Lyman	Union of Concerned Scientists (UCS)
Elizabeth Kurz	ICF
Ellis Renner	OKLO
Emma Redfoot	OKLO

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Eve Maheras	PNNL
Everett Redmond	NEI
Frank Schaaf	Sterling Refrigeration
Fred Miller	NRC
Fuibel Schubbnr	Department of Energy
Ismael Garcia	NRC
George Adams	CNWRA
George Flanagan	Oak Ridge National Lab
George Wadkins	GEH
Gerard Jackson	NRC
Glen Dodges	Burns & McDonald
Glenn Neisef	Burns & McDonald
Ian Jung	NRC
Jacob Zimmerman	NRC
James Hammelman	NRC
James Rubenstein	NRC
James Tomkins	Kairos Power
Jan Mazza	NRC
Jana Bergman	Curtiss-Wright
Janise Stolirova	FEMA
Jason Christianson	INL
Jason Marsonkowski	Department of Energy
Jason Redd	Southern
Jess Gehin	INL
Jim Brown	U Mass LO
Jim DeLano	Southern Nuclear
Jim Hammelman	NRC
Jim Kinsey	INL
Tim Lupold	NRC
Joe Ashcraft	NRC
Joe Chicingo	ARES
John Habert	NRC
John Jackson	Gain
John Monninger	NRC
John Nakoski	NRC
Jorge Alonso	MN Public Utilities Commission
Katrina McMurrian	NRC
Keith Consani	NIST
Kelvin Montague	TVA
Kenneth Armstrong	NRC
Kenneth Wagner	Sandia National Lab
Krchie Manoharan	TBN

Kurt Harris	Flibe Energy
Lance Rankovan	NRC
Nathan Haol	SWRI CNWRA
Lauren Hughes	WA Policy and Analysis
Liz Gormsen	ICF
Lori Braase	ID National Lab
Madilyn	Department of Energy
Maryam Khan	NRC
Marc Nichol	NEI
Marcia Carpentier	NRC
Margaret Elison	Kairos Towers
Maria Makitka	Department of Energy
Mariam Jackson	Research Institute
Marilyn Diaz	NRC
Marilyn Kray	Exelon
Maris Makita	Department of Energy
Marlisa Willie	Nuclear Energy Consultants
Farshid Shahroki	Ramaton
Martin Karr	Centrus Energy Corp
Martin O'Neill	Nuclear Energy Institute
Maryam Khan	NRC
Maryland Preston	NRC
Megan Wright	NRC
Michelle Hayes	NRC
Michelle Sampson	NRC
Mike Poore	ORNL
Mike Tchiltz	NEI
Miriam Juckett	SW Research Institute
Nanette Valliere	NRC
Narasimha Kadambi	Kadambi Engineering Consultants
Nathan Hall	SWRI
Neema Ashkabuci	NEI
Nicholas McMurray	Clear Path
Nicole Chlichling	Kairos Power
Nicole Lahaye	PNNL
Olivia Mikula	NRC
Osvaldo Pensado	Swri Swir
Paul Rades	NRC
Pete Gaillard	TerraPower
Peter Hastings	Kairos Power
Hanh Phan	NRC
Richard Rivera	NRC
Richard Turtel	NRC

Rick Jervey	NRC
Rick Paese	Westinghouse
Rick Redial	NRC
Rob Sweeney	IBEX
Robert Beall	NRC
Robert Haemer	IN MI Power Company
Robert Lanza	ICF
Robert Roche	NRC
Robert Schaaf	NRC
Rocardo Torres	NRC
Ruth Ezel	NRC
Scott Bussy	NRC
Shawn Harwell	NRC
Shawn Tyler	AMS Corp
Steve Maheras	PNNL
Steve Rhyne	Nugeen
Steven Arndt	NRC
Steven Dyer	NEI
Steven Hart	NRC
Steven Nesbit	LMNT Consulting
Stewart Magruder	NRC
Susan Vrahoretis	NRC
Tameron Perry	Clear Path
Tara O'Neil	PNNL
Tim Drzewiecki	NRC
Tim Harris	NRC
Timothy Frazier	GE Hitachi Nuclear Energy
Wendy Reed	NRC