



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

November 02, 2016

MEMORANDUM TO: John P. Segala, Chief  
Advanced Reactor and Policy Branch  
Division of Engineering, Infrastructure, and Advanced Reactors  
Office of New Reactors

FROM: William D. Reckley, Special Advisor–Policy */RA/*  
Orders Management Branch  
Japan Lessons-Learned Division  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF OCTOBER 25, 2016, PUBLIC MEETING  
TO DISCUSS ADVANCED REACTOR REGULATORY REVIEWS

On October 25, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16294A407), the U.S. Nuclear Regulatory Commission (NRC) staff held a Category 2 public meeting with the external stakeholders (Nuclear Infrastructure Council (NIC), Nuclear Innovation Alliance (NIA), and Nuclear Energy Institute (NEI)) to discuss the initiatives within the industry and NRC related to the development and licensing of non-light water reactors. A list of individuals attending or participating in the meeting by webinar can be found as an enclosure to this summary. The slides and meeting handouts used by the staff and other participants are available in ADAMS under Accession No. ML16

The staff provided an update on the near term implementation action plans (IAPs) described in the draft "NRC Vision and Strategy for Non-Light Water Reactor Mission Readiness," issued for public comment (81 FR 47443; July 21, 2016). A draft of the IAPs was made available to the public prior to the meeting (ADAMS Accession No. ML16294A181). The second part of the discussions led by the staff involved a draft regulatory roadmap also made available to the public prior to the meeting (ADAMS Accession No. ML16291A248). The staff proposes to use guidance from the Department of Energy (DOE) to describe stages of design processes, critical decisions, and technology readiness levels. These descriptions will be used to support developing licensing project plans for specific designs or technologies. The staff invited participants to provide feedback and possible alternatives to the DOE descriptions if another approach had been identified. The staff also requested feedback on other approaches and terminology used in the IAPs and regulatory roadmap.

A presentation included in the enclosure was provided by Mr. Craig Welling, Chief of Nuclear Safety within DOE's Office of Nuclear Energy. The presentation focused on the DOE vision and strategy for developing advanced reactor designs and a recent draft report issued by a Secretary of Energy Advisory Board (SEAB). Participants were interested in how DOE's Nuclear Energy Advanced Modeling and Simulation (NEAMS) Program could be leveraged in the development of advanced reactor designs. The NEAMS Program will be an agenda topic at the next DOE/NRC advanced reactor workshop planned for April 2017. The SEAB task force report on the future of nuclear power is available on the website of DOE's Office of Nuclear Energy.

Mr. Jeffrey Merrifield represented NIC during the meeting and his presentation is included in the meeting handouts (ADAMS Accession No. ML ). Mr. Merrifield expressed concerns about the timelines included in the DOE and NRC vision and strategies documents and emphasized that some designers may be moving at a faster pace than would be supported by the government efforts. NIC continues to support a pre-licensing design review process similar to that described in the Canadian Nuclear Safety Commission (CNSC) guidance document GD-385, "Pre-licensing Review of a Vendor's Reactor Design." Mr. Merrifield also provided views on how NRC might include advanced reactor activities in its planning and budgeting process.

Ms. Ashley Finan represented NIA during the meeting and identified several areas where additional work would be useful to clarify regulatory interactions and processes for advanced reactor designers. One area needing some additional clarification involves the term "major portions" to define the scope of standard design approvals. NIA volunteered to organize an effort to prepare a proposal for this terminology for discussion at a future meeting. NIA emphasized the potential use of advanced modeling and simulation to support reactor designers and to help define needed testing and validation activities. The ongoing work by the Consortium for Advanced Simulation of Light Water Reactors (CASL) was cited as an example of progress in this area. This topic will be a focus of the next DOE/NRC advanced reactor workshop.

The NEI presentations and discussions were provided by Ms. Kati Austgen (NEI) and Mr. Amir Afzali (Southern Nuclear). Ms. Austgen described plans by the NEI Advanced Reactor Regulatory Task Force to prepare guidance on how to engage with the NRC during various stages of the design process. Mr. Afzali described a utility-led licensing modernization project intended to develop a technology-inclusive, risk-informed, and performance-based framework for licensing advanced reactor designs. The approaches build off of some of the proposals developed as part of the Next Generation Nuclear Plant (NGNP) project. The objectives of the utility-led licensing modernization project align with those described under contributing activities to the NRC's IAP for developing a flexible non-LWR regulatory review process (Strategy 3). The participants discussed the possible coordination of these two related activities.

J. Segala

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A caution was offered by Dr. Edwin Lyman of the Union of Concerned Scientists that discussions of adjusting regulatory interactions based on the maturity of designs and resources available to designers could give the perception of the NRC reducing its safety reviews based on financial status of a company. The staff stated that reviews would be determined based on the technical merits and not ability to pay. The point emphasizes the importance of communication and clarity in terms of regulatory interactions and outcomes.

Please direct any inquiries to me at (301) 415-7490 or [william.reckley@nrc.gov](mailto:william.reckley@nrc.gov).

Enclosure:  
List of Attendees

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Memo ML16306A416; Meeting Slides ML16306A421**

<b>OFFICE</b>	NRR/JLD/JOMB/SA
<b>NAME</b>	WReckley WdR
<b>DATE</b>	11/02/2016

**OFFICIAL RECORD COPY**

Public Meeting to Discuss Non-Light Water Reactor Regulatory Reviews

October 25, 2016  
Attendance List

<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
John Segala	NRC/NRO/DEIA	Wendolyn Holland	Transatomic Power
Amy Cubbage	NRC/NRO/DEIA	David Matthews	Elysium Industries
William Reckley	NRC/NRR/JLD	Adam Reichenbach	Duke Energy
Mike Jones	NRC/NRO/DEIA	Dimitri Lutchenkov	X-energy
Joe Williams	NRC/NRO/DEIA	Carol Lane	X-energy
Nicholas McMurray	NRC/NRO/DEIA	Farshid Shahrokhi	Areva NP
George Tartal	NRC/NRO/DEIA	N P Kadambi	Consultant
Diane Jackson	NRC/NRO/DEIA	Steven Dolley	Platts
Jan Mazza	NRC/NRO/DEIA	Jana Bergman	Curtiss Wright
Marcia Carpentier*	NRC/OGC	Art Wharton*	Westinghouse
Tara Inverso	NRC/OEDO	Dale Wuokko*	Global Energy Mgt
Mike Snodderly	ACRS/NRC	Ed Wallace*	GNBC Associates
Craig Welling	DOE	Edwin Lyman*	UCS
Trevor Cook	DOE	Gary Ruf*	PSEG
Jeff Merrifield	Pillsbury / NIC	Tyson Smith*	Winston & Strawn
Vince Gilbert	NIC	George Flanagan*	ORNL
Ashley Finan	NIA	Heath Dehn*	EPM
Everett Redmond	NEI	Mark Holbrook*	INL
Russ Bell	NEI	Michael Madison*	Balch & Bingham
Kati Austgen	NEI	Pete Gaillard*	Terrapower
Pam Cowan	NEI	Staci Wheeler*	NEI
Amir Afzali	Southern Nuclear	Stephen Burdick*	Morgan Lewis
Jim Kinsey	INL	Thomas O'Connor*	DOE
Travis Chapman	Oklo	Wayne Moe*	INL
Peter Hastings	Oklo	Wendi Croft*	Exelon
Patricia Campbell	GEH	Alex Popova*	Oklo
Stephen Smith	Transatomic Power	Caroline Cochran*	Oklo

\* indicates individual participated by webinar