



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

June 1, 2023

MEMORANDUM TO: Gerond A. George, Chief  
Licensing Projects Branch  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

FROM: Daniel G. King, ATF Project Manager */RA/*  
Licensing Projects Branch  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE MAY 10, 2023, PUBLIC MEETING TO  
DISCUSS THE ACCIDENT TOLERANT FUEL "ROADMAP TO  
READINESS"

On May 10, 2023, the U.S. Nuclear Regulatory Commission (NRC) staff conducted a hybrid public meeting with representatives from the nuclear industry to discuss the draft Accident Tolerant Fuel (ATF) "Roadmap to Readiness" graphic. The graphic will be utilized to complement the ATF Project Plan (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21243A298), providing a visual representation of near-term ATF technology licensing pathways. The purpose of the meeting was to provide an opportunity for the NRC staff to hear insights from the public regarding scope, content, and utilization of the graphic. The meeting notice can be found at ADAMS Accession No. ML23129A175. The NRC meeting slides can be found at ADAMS Accession No. ML23128A329.

Joe Donoghue, Director of the Division of Safety Systems (DSS) in the Office of Nuclear Reactor Regulation (NRR), gave the opening remarks. The NRC staff provided a presentation introducing the "Roadmap to Readiness," in relation to the ATF Project Plan, discussing the graphics' purpose and next steps. The staff provided the graphics' assumptions and general descriptors, as they guided external stakeholders through each ATF technology licensing pathway.

Following the completion of the staff's presentation, the NRC staff opened the meeting to solicit stakeholder feedback on the graphic scope, content, layout, and utilization. Representatives from the Nuclear Energy Institute, Department of Energy, and Framatome, Inc. provided feedback for the NRC staff to consider as it finalizes the "Roadmap to Readiness" for near-term ATF technologies. Enclosure 1 contains the feedback received during the meeting.

Contact: Daniel G. King  
301-415-1233

One comment was received during the public comment portion of the meeting, regarding specific information on ATF lead test assemblies (LTAs). The NRC staff acknowledged the question; however, such topic was beyond the scope of the meeting. Additional information on LTAs can be found at:

<https://www.nrc.gov/reactors/power/atf/lead-test.html>

Joe Donoghue, Director of DSS in NRR gave the closing remarks. No regulatory decisions were made in the meeting.

Enclosures:

1. Feedback Received on "Roadmap to Readiness" Graphic
2. List of Attendees

**Feedback Received on “Roadmap to Readiness” Graphic**

<b>Source</b>	<b>Comment</b>
Nuclear Energy Institute (NEI)	Identify Regulatory Guide (RG) 1.183 Revisions 1 and 2 as connected to all near-term ATF technologies, to include doped pellets and coated cladding. Consideration for a dotted line to be added connecting the existing activity in the increased enrichment and higher burnup pathway, to the other technologies.
Nuclear Regulatory Commission (NRC)	Identify industry specific timelines, for critical items, such as the RG 1.183 Revisions on the roadmap. Specifically, noting dates of critical path activities when there is an impact on licensing actions.
NEI	Based on NRC’s comment above, NEI noted that RG 1.183 Revision 1 is a critical activity for increasing burnup limits to 68 gigawatt-days per metric ton of uranium and licensing doped pellet technology. Recommended indicating September 2023 as the critical date industry needs the revision for current communicated timelines.
Member of the Public	Consider evaluation of RGs 1.223 and 1.224 for the use of coated cladding ductility and embrittlement on cladding testing for inclusion in the roadmap.
NEI	Consider updating the title to be “Near-Term Accident Tolerant Fuel Licensing Roadmap” noting the scope is limited to near-term technology, as defined in the ATF Project Plan.
NEI	Consider clearly annotating the difference between pressurized water reactor (PWR) and boiling water reactor (BWR) estimated batch loading dates. The roadmaps listed ~2027 date is accurate for PWRs; however, BWRs are more likely to occur in 2029.
NEI	Consider including industry related ATF reports and webpages in the hyperlinks contained within the roadmap.
NEI	Consider evaluating current licensing processes to find opportunities to find efficiencies in schedules. For example, consider allowing licensees to reference draft topical reports in license amendment requests.
DOE	Consider including longer-term ATF technologies within the roadmap, such as silicon carbide or iron-chromium-aluminum cladding.
Member of the Public	Consider including a feedback loop in the higher burnup path, illustrating the ongoing research.
Member of the Public	Consider including Department of Energy funded research programs within the higher burnup pathway, as they are obtaining information related to fuel fragmentation, relocation, and dispersal.

## List of Attendees

Public Meeting to Discuss the Accident Tolerant Fuel “Roadmap to Readiness”  
May 10, 2023

<b>U.S. Nuclear Regulatory Commission (NRC)</b>	
<b>First Name</b>	<b>Last Name</b>
Andrea	Kock
Andrew	Bielen
Bo	Pham
Carla	Roque-Cruz
Chris	Markley
Chris	Van Wert
Daniel	King
Damaris	Marcano
Donald	Palmrose
Gerond	George
Gregory	Suber
Hossein	Esmaili
Jackie	Harvey
James	Corson
Jason	Piotter
Joseph	Donoghue
Joseph	Messina
Kevin	Heller
Kevin	Hsueh
Lucas	Kyriazidis
Mathew	Panicker
Meena	Khanna
Mike	Franovich
MJ	Ross-Lee
Ngola	Otto
Sandra	McClure
Scott	Krepel
Tom	Boyce

<b>Non-NRC</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Organization (if provided)</b>
Aylin	Kucuk	
Budd	Haemer	American Electric Power Service Company
Chris	Canniff	Excel Services Corporation
Don	Algama	Department of Energy (DOE)
Frank	Goldner	DOE
Jana	Bergman	Curtis Wright Corporation
Jeff	Gabor	
Jeffrey	Kobelak	Westinghouse Electric Company
Kris	Cummings	
Kurshad	Muftuoglu	Electric Power Research Institute
Madeline	Feltus	DOE
Nadejda	Todorova	Constellation Nuclear
Paul	Clifford	Member of the Public
Rebecca	Steinman	Constellation Nuclear
Rich	Janati	Commonwealth of Pennsylvania Government
William	Freebairn	S&P Global
Zeses	Karoutas	Westinghouse Electric Company

Note: Attendance list based on Microsoft Teams participant list and in person attendee sign in sheet. This list does not include individuals who did not provide their last name either in registering for the meeting or by a follow-up email.

SUBJECT: SUMMARY OF THE MAY 10, 2023, PUBLIC MEETING TO DISCUSS THE ACCIDENT TOLERANT FUEL "ROADMAP TO READINESS" DATED JUNE 1, 2023

**DISTRIBUTION:**

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RidsOpaMail	CRoque-Cruz, NRR	HEsmaili, RES
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RidsNrrDorlLlpb	MRoss-Lee, NRR	DPalmrose, NMSS
RidsNrrDnrl	SKrepel, NRR	JCorson, RES
RidsNrrDss	JMessina, NRR	LKyriazidis, RES
RidsNrrDssSfnb	KHeller, NRR	JHarvey, NRR
AKock, NRR	SHelton, NMSS	NOtto, NRR
MKing, NRR	CRegan, NMSS	CVanWert, NRR
BPham, NRR	TInverso, NMSS	GSuber, NRR
GGeorge, NRR	DMarcano, NMSS	MPanicker, NRR
DHarrison, NRR	TBoyce, NMSS	MRoss-Lee, NRR
DKing, NRR	MFranovich, NRR	CMarkely, NMSS
LJames, NRR	MKhanna, NRR	ABielen, RES

**ADAMS Accession Nos.:**

- ML23138A050 (Package)**
- ML23137A262 (Meeting Summary)**
- ML23128A329 ( Meeting Notice)**
- ML23129A175 (Meeting Slides)**

OFFICE	NRR/DORL/LLPB PM	NRR/DORL/LLPB PM	NRR/DORL/LLPB LA	NRR/DORL/LLPB BC
NAME	DKing	CRoque-Cruz	DHarrison	GGeorge
DATE	5/17/2023	5/19/2023	5/31/2023	6/1/2023
OFFICE	NRR/DORL/LLPB PM			
NAME	DKing			
DATE	6/1/2023			

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