



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

July 21, 2020

MEMORANDUM TO: Christian Araguas, Acting Deputy Director
Division of Fuel Management
Office of Nuclear Material Safety and Safeguards

FROM: Tilda Liu, Senior Project Manager *Tilda Liu*
Material Control and Accounting Branch
Division of Fuel Management
Office of Nuclear Material Safety and Safeguards

SUBJECT: SUMMARY OF JUNE 23, 2020, CATEGORY 1 PUBLIC
WORKSHOP ON SPENT FUEL PERFORMANCE MARGINS

On June 23, 2020, the U.S. Nuclear Regulatory Commission (NRC) held a Category 1 remote public workshop with the Nuclear Energy Institute (NEI) and other industry representatives to continue dialogue on recommendations contained in the NEI's white paper on Spent Fuel Performance Margins dated November 8, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19318D971). This workshop built upon previous held meetings and workshops including those conducted on January 22, 2020 (ADAMS Accession No. ML20028F277), March 25-26, 2020 (ADAMS Accession No. ML20106F135), April 15-16, 2020 (ADAMS Accession No. ML20126G388), and June 11, 2020 (ADAMS Accession No. ML20170A355) respectively.

During the June 23, 2020, workshop, the NRC staff and the industry discussed four technical areas focused on dry cask storage licensing reviews: use of Phenomenon Identification and Ranking Tables (PIRTs), plans for developing a revised framework for thermal engineering reviews, a draft approach for conducting graded acceptance reviews, and a proposed alternative approach to shielding reviews.

The following presentation materials were used by the industry and the EPRI during the subject workshop:

- Thermal Margins RIRP Crosswalk, Prioritization, and Links to PIRTs: Performance Margins Recommendations (ADAMS Accession No. ML20175A076)
- Used Fuel Storage and Transportation Issue Resolution Plan; Issue Number: I-20-03, Performance Margins Recommendation: IV-1,3,4,5 (ADAMS Accession No. ML20175A072)

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The following presentation materials were used by the NRC staff during the subject workshop:

- Risk Tool for Spent Fuel Dry Storage (ADAMS Accession No. ML20171A409)
- Shielding Topics (ADAMS Accession No. ML20170B060)

At the end of the workshop, the NRC staff provided an opportunity for the members of the public to comment or ask questions regarding NRC's regulatory process related to the topics discussed. There were several questions raised during the public comment period of the meeting. While the majority of the questions were addressed to the respective public members, there were a few questions that needed follow-up. Hence, for those questions that were not addressed during the meeting, the NRC staff requested the member of the public to reach out to the respective NRC staff members to obtain additional information.

More than 50 individuals from industry, vendor groups, public citizens, and NRC staff attended the workshop (some participating in portions only) via Skype and telephone bridge line. The discussions held during this workshop benefited both the NRC staff and industry representatives, as they provided an effective and efficient forum of communication for all parties involved. No NRC staff decision was made during the meeting.

Enclosure 1 contains the meeting agenda for the June 23, 2020, workshop as previously noted in the public meeting notice (ADAMS Accession No. ML20160A145). Enclosure 2 provides a list of those who participated in the June 23, 2020, remote public workshop. Enclosure 3 is the detailed meeting summary for the workshop. Enclosure 4 contains a summary table which was shared by the NRC staff during the workshop on spent fuel performance margins.

Enclosures:

1. Meeting Agenda
2. List of Participants
3. Meeting Summary
4. Summary Table: June 23, 2020, Workshop on Spent Fuel Performance Margins

SUBJECT: SUMMARY OF JUNE 23, 2020, CATEGORY 1 PUBLIC WORKSHOP
ON SPENT FUEL PERFORMANCE MARGINS

DATED: July 21, 2020

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DATE	7/16/2020	7/13/2020	7/21/2020

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MEETING AGENDA

CATEGORY 1 PUBLIC WORKSHOP ON SPENT FUEL PERFORMANCE MARGINS

June 23, 2020

Time	Topic	Speaker(s)
12:30 pm – 12:45 pm	Introductions and opening remarks	NRC/NEI
12:45 pm – 1:45 pm	Discussion on a Thermal RIRP reflecting integrated Recommendations IV-1 through IV-5 as a function of safety goal and gross rupture definitions	EPRI
1:45 pm – 2:45 pm	Discussion on crosswalks, prioritization and linkages to PIRTs	NEI
2:45 pm – 3:45 pm	Discussion on graded approach reviews	NRC
3:45 pm – 4:45 pm	Discussion on alternative licensing strategies for shielding reviews	NRC
4:45 pm – 5:00 pm	Opportunity for public comment	All
5:00 pm	Meeting adjourn	

LIST OF PARTICIPANTS

CATEGORY 1 PUBLIC WORKSHOP ON SPENT FUEL PERFORMANCE MARGINS

June 23, 2020

Name	Affiliation
Tae Ahn	Nuclear Regulatory Commission (NRC)
Christian Araguas	NRC
Chris Bajwa	NRC
Alana Bell	NRC
Tom Boyce	NRC
Michel Call	NRC
Richard Chang	NRC
Donald Chung	NRC
Jennifer Dalzell	NRC
Yaira Diaz-Sanabria	NRC
Daniel Forsyth	NRC
Eliezer Goldfeiz	NRC
Christian Jacobs	NRC
Richard Jervey	NRC
Paul Kallan	NRC
Andrea Kock	NRC
Zhian Li	NRC
Tilda Liu	NRC
Timothy McCartin	NRC
John McKirgan	NRC
Jason Piotter	NRC
Christopher Regan	NRC
Jorge Solis	NRC
Alex Sotomayor-Rivera	NRC
Ricardo Torres	NRC
Brian Wagner	NRC
Veronica Wilson	NRC
John Wise	NRC
Aladar Csontos	Electric Power Research Institute (EPRI)
Donna Gilmore	Public
E Supko	Public
Glenn Schwartz	PSEG Nuclear
Rich Hagler	PG&E Diablo Canyon
Jeremy Renshaw	EPRI
Hatice Akkurt	EPRI
John Biersdorf	Public
Kalene Walker	Public
Keith Waldrop	EPRI
Kevin Braico	Public
Kyle Duke	Public
Yoonjo Lee	Public
Mark Richter	Nuclear Energy Institute (NEI)

Name	Affiliation
Ed Mayer	Public
Paul Plante	The Yankee Companies
Rick Migliore	Public
Rodney McCullum	NEI
Shannon Chu	Public
Stefan Anton	Holtec International
Steve Baker	Transware
Sven Bader	Public
Tom Tramm	Centrec
Zita Martin	Tennessee Valley Authority

MEETING SUMMARY

CATEGORY 1 PUBLIC WORKSHOP ON SPENT FUEL PERFORMANCE MARGINS

June 23, 2020

On June 23, 2020, the U.S. Nuclear Regulatory Commission (NRC) held a Category 1 public workshop with the Nuclear Energy Institute (NEI) and other industry representatives to discuss NEI's white paper on Spent Fuel Performance Margins (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19318D971). This workshop built upon previous held meetings and workshops including those conducted on January 22, 2020 (ADAMS Accession No. ML20028F277), March 25-26, 2020 (ADAMS Accession No. ML20106F135), April 15-16, 2020 (ADAMS Accession No. ML20126G388), and June 11, 2020 (ADAMS Accession No. ML20170A355) respectively.

The June 23, 2020, workshop focused on four technical areas: crosswalks, prioritization and linkages to Phenomenon Identification and Ranking Tables (PIRTs), a revised Thermal Recommendation Issue Resolution Plan (RIRP) as a function of safety objective and gross rupture definitions, graded approach reviews and alternative licensing strategies for shielding reviews.

Specifically, the Electric Power Research Institute (EPRI) and industry discussed a revised Thermal RIRP reflecting integrated Recommendations IV-1 through IV-5 as a function of safety objective goal and gross rupture definitions. The NEI discussed crosswalks, prioritization and linkages to PIRTs, including its vision for leveraging recently conducted PIRTs and provided clarity on the connectivity of the recommendations discussed in the previous workshops. The NRC staff discussed its draft approach for conducting graded acceptance reviews (Recommendation II-1) and proposed alternative licensing strategies for shielding reviews. As a result of the workshop, the participants aligned on detailed problem statements for the associated recommendations, planned regulatory products, and next steps.

The NRC staff made opening remarks and turned over the workshop to the industry to begin its discussions. The industry then made a presentation entitled "Thermal Margins RIRP Crosswalk, Prioritization, and Links to PIRTs." In particular, EPRI discussed the industry's objectives including development of technically defensible consensus-based regulatory guidance to (1) establish durable and up-to-date fuel performance metrics to meet NRC regulations requiring protection of cladding from gross ruptures, and (2) create a risk-informed graded approach for systems loaded to less than approved licensed limits for operational worker safety improvements. The industry also discussed its objective related to the gross rupture PIRT on providing clarity to regulatory expectations prior to loading and for unexpected contingencies during short term operations. The NEI then provided a summary and a status update on Used Fuel Storage and Transportation Issue Resolution Plan, as related to performance margins Recommendations IV-1, -3, -4, and -5, on developing industry best practices guide for thermal modeling, including proposed actions and associated due dates.

The NRC staff gave a presentation entitled, "Risk Tool for Spent Fuel Dry Storage." During the discussion, the NRC staff shared that its intent and purpose related to this subject, which included: (1) expansion in the use of risk information in NRC's regulatory activities, (2) level of review based on risk insights, (3) allowance for a more consistent review process and

improvement in efficiency and safety, and (4) means to document and incorporate new risk information from future reviews. The NRC staff acknowledged and shared the expectation on developing a grading process on acceptance review (Recommendation II-1) that would neither require rulemaking, nor the development of formal guidance, and it would be achievable in a relatively short period of time.

In addition, the NRC staff gave a presentation entitled “Shielding Topics.” The discussion specifically included pertinent regulatory background, an outline of the NRC staff proposed plan for addressing the NEI Recommendation III-3 in the RIRP and the associated milestones, and current status on the regulatory reviews pertaining to shielding evaluations. Furthermore, the NRC staff shared its desire in seeking a more efficient way by which regulatory compliance may be achieved, in the case of the dry spent fuel storage systems, while maintaining the same level of safety, and therefore, focusing its reviews in the most safety significant areas. During the workshop, the NRC staff indicated that it plans to update the relevant shielding review guidance documents including NUREG/CR-6802, “Recommendations for Shielding Evaluations for Transport & Storage Packages,” dated May 2003. The NRC staff sought additional external stakeholder’s inputs on the available data which contain more realistic values to perform shielding evaluations. The NRC staff also requested industry feedback by identifying areas where there may be excessive conservatism in the NRC’s guidance documents.

Finally, the NRC staff summarized the June 23, 2020, workshop on Spent Fuel Performance Margins by sharing a detailed listing of technical topics as outlined in Section X, “Recommendations,” of the NEI’s November 8, 2019, white paper, requested regulatory products, and associated milestones for the NRC and the industry.

At the end of the workshop, the NRC staff provided an opportunity for the members of the public to comment or ask questions regarding NRC’s regulatory process related to the topics discussed. There were several questions raised during the public comment period of the meeting. While majority of the questions were addressed to the respective public members, there were a few questions that needed follow-up. Hence, for those questions that were not addressed during the meeting, the NRC staff requested the member of the public to reach out the respective NRC staff members to obtain additional information.

More than 50 individuals from industry, vendor groups, public citizens, and NRC staff attended the workshop (some participating in portions only) via Skype and telephone bridge line. The NRC staff is planning future workshops to continue efforts on the white paper recommendations; the next workshop is scheduled for late July 2020.