



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

April 21, 2022

MEMORANDUM TO: Richard Chang, Chief
Licensing Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Lois M. James, Senior Project Manager */RA/*
Licensing Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: MEETING SUMMARY - MARCH 4, 2022, MEETING ON STAFF
PERSPECTIVES ON RISK-INFORMED MODIFICATION OF
INSERVICE INSPECTION PROGRAM

On March 4, 2022, the U.S. Nuclear Commission (NRC) staff met with representatives from the Electric Power Research Institute (EPRI) to discuss the staff's perspective on risk-informed modification of the inservice inspection program. The meeting summary is provided as Enclosure 1 and the list of attendees is provided as Enclosure 2. The meeting notice is dated February 22, 2022, and the meeting agenda is available in the Agencywide Documents and Access Management System at Accession No. ML22053A171. The NRC staff presentation slides are available in ADAMS at Accession No. ML22060A277.

If you have any questions or comments, please contact me via e-mail at Lois.James@nrc.gov.

Enclosures:

1. Meeting Summary
2. List of Attendees

cc w/enclosures:

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U.S. Nuclear Regulatory Commission Public Meeting Summary

Title: Staff Perspectives on Risk-Informed Modification of the Inservice Inspection (ISI) Program

Date of Meeting: March 4, 2022, 1:00 pm – 2:30 pm

Location: Webinar

Type of Meeting: This was an Observation Meeting in which attendees had an opportunity to observe the U.S. Nuclear Regulatory Commission (NRC) performing its regulatory function or discussing regulatory issues. Attendees had an opportunity to ask questions of the NRC staff or make comments about the issues discussed following the business portion of the meeting; however, the NRC was not actively soliciting comments toward regulatory decisions at this meeting.

Purpose of the Meeting: To communicate the NRC staff perspectives on risk-informed modification of the ISI program.

General Details: The NRC staff held a public, observational meeting with the Electric Power Research Institute (EPRI) to communicate the staff perspectives on risk-informed modification of the ISI program. The meeting began at 1:00 pm and ended 2:30 pm. There were 26 NRC staff members, 4 EPRI representatives, 21 members of industry, and 22 members of the public or individuals who did not identify their affiliation. The meeting began with introductions of the NRC staff, EPRI representatives, and industry members.

Summary of Meeting: The NRC staff began the meeting by noting an increase in ISI submittals that are explicitly or implicitly risk informed. Further, the staff noted that many of these submittals contain novel applications of probabilistic modeling or other risk-based arguments. The staff is reviewing these risk-informed applications, whether explicit or implicit, on their merits under the risk-informed decisionmaking framework.

To ensure a common understanding, the staff described the principles of risk-informed decisionmaking:

1. current regulations must be met
2. defense in depth consistency
3. maintenance of safety margins
4. risk-informed analysis
5. performance monitoring

All five of the principles need to be addressed. The NRC staff provided an example in that probabilistic fracture mechanics (PFM) analyses may support Principle 3, maintenance of safety margin, and Principle 4, risk-informed analysis, but does not address Principle 5, performance monitoring. However, PFM analyses allow for more “weight” to be given to Principle 4, risk-informed analysis, when combined with adequate Principle 5, performance monitoring.

In discussing Principle 5, the NRC staff explained that performance monitoring provides:

1. Direct evidence of the presence and extent of degradation if present
2. Validation and confirmation of the adequacy of analyses
3. Timely methods to detect novel or unexpected degradation

Industry members expressed concern about the 20-year limit and why the NRC staff appears to be deviating from the pilot plant's amendments that have been approved.

Regarding the deviating from the pilot plant's amendments, the NRC staff explained that not all the subsequent applications submitted have been consistent with the pilot plant's application and these inconsistencies have resulted in internal conversations and reconsideration of the path forward. Specifically, the NRC staff acknowledges that it was not as clear as it should have been in the safety evaluations for the pilot plant's amendments and that it did not fully address the implications of the decisions as well as it should. When it comes to approving ISI extensions, the NRC staff stated that the three objectives that need to be met for performance monitoring are:

1. direct reading,
2. to validate basis analysis, and
3. it has to be timely.

The NRC staff further stated that performance monitoring does not have to be any specific testing. Rather the testing must be justified as supporting the three objectives listed above.

Regarding the 20-year extension limit, the NRC staff stated that any year is arbitrary. The length of the extension depends on many things, such as the safety significance of the component and the environment of the component. The NRC staff chose 20 years as a judicial, prudent, first step. A longer time can be requested but such a request must have a judicial, prudent, justification which should include an appropriate level of performance monitoring.

The NRC staff restated that two key aspects of performance monitoring are to make sure that basis analysis and calculations remains valid and to see if there are any new or unknown degradations.

Industry members asked if it would have been better to have submitted a topical report (TR). The NRC staff stated that a TR would have been better. When reviewing a TR, the staff is looking on a general level about what level of sampling is appropriate. The NRC staff has found several levels of sampling acceptable, and sampling is a powerful tool and justification. When reviewing plant specific ISI extensions, the sampling aspects are limited.

The NRC staff ended the meeting by reiterating the practical takeaways:

1. Extension of ISI intervals to 20 years may be justified as a prudent "first step" in optimization of ISI intervals
2. Coordination of inspections over extended ISI intervals is prudent to ensure appropriate monitoring and trending of the subject components
 - Monitor for potential unknown degradation mechanisms

- Form a basis for potential future applications to further extension

Public Participation Themes:

No member of the public spoke on the webinar and no public meeting feedback forms were received.

Related Documents:

1. Meeting notice and agenda – ADAMS Accession No. ML22053A171
2. NRC slide presentation – ADAMS Accession No. ML22060A277

U.S. Nuclear Regulatory Commission Public Meeting Participants

Title: Staff Perspectives on Risk-Informed Modification of Inservice Inspection (ISI) Program

Date of Meeting: March 4, 2022, 1:00 pm – 2:30 pm

U.S. Nuclear Regulatory Commission Participants	
Name	Affiliation
Allen Hiser	U.S. Nuclear Regulatory Commission (NRC)/Office of Nuclear Reactor Regulation (NRR)/Division of New and Renewed Licenses (DNRL)
David Rudland	NRC/NRR/DNRL
Brian Smith	NRC/NRR/DNRL
Bernie Thomas	NRC/NRR/DNRL
Bill Rogers	NRC/NRR/DNRL/License Renewal Projects Branch
Isaac Anchondo-Lopez	NRC/NRR/DNRL/Vessels and Internals Branch (NVIB)
Michael Benson	NRC/NRR/DNRL/NVIB
Angie Buford	NRC/NRR/DNRL/NVIB
David Dijamco	NRC/NRR/DNRL/NVIB
Carolyn Fairbanks	NRC/NRR/DNRL/NVIB
Matthew Mitchell	NRC/NRR/DNRL/NVIB
John Tsao	NRC/NRR/DNRL/NVIB
Dan Widrevitz	NRC/NRR/DNRL/NVIB
On Yee	NRC/NRR/DNRL/NVIB
Undine Shoop	NRC/NRR/Division of Operating Reactor Licensing (DORL)/Integrated Program Management and BDB
Lois James	NRC/NRR/DORL/Licensing Projects Branch
Brent Ballard	NRC/NRR/DORL/Plant Licensing Branch I (LPL1)
James Danna	NRC/NRR/DORL/LPL1
James Kim	NRC/NRR/DORL/LPL1
Audrey Klett	NRC/NRR/DORL/LPL1
Jason Paige	NRC/NRR/DORL/LPL1
Justin Poole	NRC/NRR/DORL/LPL1
V. Sreenivas	NRC/NRR/DORL/LPL1
Ed Miller	NRC/NRR/DORL/Plant Licensing Branch II-1
Blake Purnell	NRC/NRR/DORL/Plant Licensing Branch III (LPL3)
Joel Wiebe	NRC/NRR/DORL/LPL3

Industry Participants	
Name	Affiliation
John Conly	Certrec Corporation
Roy Linthicum	Constellation Nuclear
Thomas Loomis	Constellation Nuclear
Heather Malikowski	Constellation Nuclear
Sailaja Mokkapati	Constellation Nuclear
Romit Patel	Constellation Nuclear
Diane Render	Constellation Nuclear
Veena Gubbi	DEP

Industry Participants	
Name	Affiliation
Brian Anderson	Duke Energy
Lee Grzeck	Duke Energy
Austin Charles Keller	Duke Energy
Mark Pyne	Duke Energy
Victoria Anderson	Electric Power Research Institute (EPRI)
James Cirilli	EPRI
Robert Grizzi	EPRI
DJ Shim	EPRI
Kevin Hall (Iddeal)	Iddeal Solutions
Scott Kulat	Inservice Engineering
Donna Slivon	NextEra Energy
Gary Lofthus	Southern Nuclear Company
Corey Thomas	Southern Nuclear Company
Kevin Wong	Structural Integrity Associates, Inc.
Marisa Garcia Heras	Tecnatom, Spain
Daniel Lamond	True North Consulting
Richard Deopere	Xcel Energy

Members of the Public
Name
Kevin Allen
Jerri Byers
Sarah Champion
Steve Chengelis
Scott Chesworth
Nat Chofie
Rob Choromokos
Dilip Dehia
Hein Do
Adam Keyser
Matthew King
Norman Eugene Kunkel
Annie Mayer
Steve Mays
Kathleen Nevins
Nathan Palm
Deann Raleigh
Chet Austin Sigmon
Carroll Trull
Mo Uddin
Two individuals did not provide a name

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PERSPECTIVES ON RISK-INFORMED MODIFICATION OF INSERVICE
INSPECTION PROGRAM DATED APRIL 22, 2022

DISTRIBUTION:**PUBLIC**

RidsACRS_MailCTR Resource

RidsNrrDorl Resource

RidsNrrDorlLlpb Resource

RidsNrrLADHarrison Resource

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MMitchell, NRR/DNRL/NPHP

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AHiser, NRR/DNRL

DRudland, NRR/DNRL

BSmith, NRR/DNRL

BThomson, NRR/DNRL

rgrizzi@epri.com**ADAMS Accession Nos.:**

Meeting Summary - ML22089A093

Meeting Notice and Agenda - ML22053A171

NRC Slide Presentation - ML22060A277

via e-mail*NRR-106**

OFFICE	DORL/LLPB/PM	DORL/LLPB/LA	DNRL/NVIB/BC	DORL/LLPB/BC
NAME	LJames*	DHarrison	ABuford	RChang
DATE	3/28/2022	3/31/2022	4/8/2022	4/21/2022
OFFICE	DORL/LLPB/PM			
NAME	LJames			
DATE	4/21/2022			

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