



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

October 20, 2021

U.S. Nuclear Regulatory Commission Public Meeting Summary

Title: Meeting with the Industry Steam Generator Task Force

Meeting Identifier: 20211199

Date of Meeting: October 7, 2021

Location: Webinar

Type of Meeting: Partially Closed Meeting

Purpose of the Meeting: The purpose of this meeting was for the U.S. Nuclear Regulatory Commission (NRC) staff to discuss steam generator (SG) issues with the industry Steam Generator Task Force (SGTF).

General Details: The industry SGTF met with NRC staff on October 7, 2021, by webinar. The purpose of the meeting was to discuss a variety of SG issues. The meeting consisted of open and closed portions during which public and proprietary information was discussed, respectively. The public NRC and industry slides are available in the Agencywide Documents Access and Management System (ADAMS) under Package Accession No. ML21293A117. This meeting was noticed as a partially closed meeting and the agenda is available in ADAMS under Accession No. ML21259A064.

**LISTING OF ATTENDEES
U.S. NRC MEETING WITH THE INDUSTRY STEAM GENERATOR TASK FORCE**

October 7, 2021

Participant	Affiliation	Participant	Affiliation
Alan Brown	Intertek	Rich Guill	EPRI
Ashley Birdett	Luminant - CPNPP	Russell Cipolla	Intertek
Bill Cullen	EPRI	Sasan Bakhtiari	ANL
Brent Capell	EPRI	Scott Redner	Xcel Energy, Inc.
Craig Kelley	Framatome	Sean Kil	EPRI
Cotasha Blackburn	Southern Company	Steve Fluit	BWXT
Daniel Folsom	TVA	Tim Thulien	Duke Energy
Dan Mayes	Duke Energy	Warren Leaverton	APS
Dean Masters	Wolf Creek Nuclear Operating Corp.	Thomas Bipes	Zetec
Douglas Hansen	APS	Allen Hiser	NRC
Helen Cothron	EPRI	Andrew Johnson	NRC
James Benson	EPRI	Brian Smith	NRC
Jana Bergman	Curtiss-Wright	Emmanuel Sayoc	NRC
Jasmyn Bone	Entergy	Greg Makar	NRC
Jeff Raschiatore	Westinghouse	Jason Daniel	NRC
Jesse Baron	TVA	Joel Jenkins	NRC
John Arhar	PG&E	Leslie Terry	NRC
Kester Thompson	FPL	Patrick Purtscher	NRC
Lee Friant	Exelon Nuclear	Paul Klein	NRC
Michael Stark	Dominion Energy	Steven Bloom	NRC
Pat Wagner	Wolf Creek Nuclear Operating Corp.		
Patrick Fabian	PSEG Nuclear		
Phil Rush	MPR		

Summary of Presentations: Industry representatives made presentations on processes for sharing information with the NRC, recently published Electric Power Research Institute (EPRI) reports, status of industry guidelines, recent operating experience, industry adoption of Technical Specification Task Force (TSTF), TSTF-577, Revision 1, “Revised Frequencies for Steam Generator Tube Inspections” (ADAMS Accession No. ML21060B434), and the definitions of dents and dings. In addition, the industry and NRC staff discussed proposed changes to Aging Management Program (AMP) XI.M19, “Steam Generators,” in Volume 2 of NUREG-2191, “Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report” (ADAMS Accession No. ML17187A204). Additional details of the information exchanged during the meeting is provided below.

- EPRI shared their newly developed process for sharing information with the NRC. The NRC will continue to receive the EPRI SG guideline documents that make up the industry SG Program, and interim guidance documents, with a proprietary determination affidavit. For other SG related documents, EPRI may initially share them with the NRC as “Read Only” through an electronic reading room, which allows the staff the opportunity to review the documents and determine if formal submission is necessary.
- Recently published EPRI reports were discussed related to primary water reactor secondary side hydrazine alternatives, primary-to-secondary leakage, SG eddy current inspection data signal simulation, and technical bases for longer inspection intervals for thermally treated Alloy 600 SG tubing. In addition, industry informed the staff of recently issued interim guidance related to an alternative method to measure dispersant concentration in secondary water chemistry and analyzing SG eddy current inspection data.
- International operating experience related to dense scale spalling off SG tubes and resulting in tube wear was presented. EPRI will continue discussions with the international utility to learn more about the mechanism resulting in tube wear and whether it is a potential mechanism at domestic plants. In addition, the industry is considering research by creating deposits on tubes and investigating what eddy current examinations can determine about the nature of the deposits, to better understand the spalled deposits that caused tube wear.
- International operating experience related to flow accelerated corrosion of the primary moisture separators at a pressurized heavy water reactor (PHWR) was also presented. Industry clarified that the inspection frequency of the upper internals, such as the primary moisture separators, is typically provided by the original equipment manufacturer. Whether an analysis had been performed, to determine if the degradation of the moisture separators was flow accelerated corrosion or liquid drop impingement, was not known.
- The SGTF reported that 29 units have already submitted license amendment requests (LARs) to adopt TSTF-577, 4 units plan to submit LARs in calendar year 2021, 18 units plan to submit LARs in calendar year 2022, and the remaining units may submit later or not at all. In addition, the SGTF representative reported that some of the thermally treated Alloy 600 fleet are planning or considering inspecting full length with advanced probes.
- The NRC and the SGTF discussed the definitions of “dents” and “dings” in the SG guidelines. A dent is defined as a local reduction in the SG tube diameter due to corrosion products from carbon steel, while a ding is defined as a local reduction in the SG tube diameter caused by manufacturing, support plate shifting, vibration, or other mechanical means. The NRC staff communicated that there appears to be inconsistencies in the use of

the terms dents and dings. The NRC staff requested that licensees identify their plant-specific definition of dents and dings in the SG tube inspection report.

- Following approval of TSTF-577, the industry identified a potential conflict between AMP XI.M19 in Volume 2 of NUREG-2191 related to the requirement to inspect the SG divider plate assemblies, tube-to-tubesheet welds, heads, and tubesheets at least every 72 effective full power months or every third refueling outage, whichever results in more frequent inspections. The industry also noted that the requirement does not exclude materials that are not susceptible to stress corrosion cracking. The NRC staff clarified that the requirement is applicable to all SGs regardless of material. This is based on U.S. operational experience with detection of cladding flaws and damage, which can occur in any of the materials used. The NRC staff agreed that clarification could be made through interim staff guidance (ISG) and stated that prior to issuance of an ISG license renewal applicant may take an exception to the requirement. The NRC staff shared proposed ISG wording for discussion purposes only during the meeting (ADAMS Accession No. ML21293A118).

Closed Discussion

- The final portion of the meeting was closed due to proprietary information related to EPRI SG guideline revisions.

If you have any questions regarding this meeting summary, please feel free to contact Leslie Terry by phone at 301-415-1167, or by e-mail at Leslie.Terry@nrc.gov.

Attachments:

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|---------------------|-------------|
| 1. Meeting Notice: | ML21259A064 |
| 2. NRC Slides: | ML21293A118 |
| 3. Industry Slides: | ML21277A031 |
| 4. Package: | ML21293A117 |

SUBJECT: SUMMARY OF THE OCTOBER 7, 2021, PARTIALLY CLOSED MEETING WITH
THE INDUSTRY STEAM GENERATOR TASK FORCE TO DISCUSS STEAM
GENERATOR ISSUES
DATED OCTOBER 20, 2021

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