



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

December 22, 2022

Mr. Gary Peters, Director
Licensing and Regulatory Affairs
Framatome Inc.
3315 Old Forest Road
Lynchburg, VA 24501

SUBJECT: REPORT FOR JUNE 13-16, 2022, REGULATORY AUDITS REGARDING FRAMATOME INC. TOPICAL REPORTS, ANP-10311P-A, REVISION 1, SUPPLEMENT 1P, REVISION 0, "COBRA-FLX: ORFEO-HMP CRITICAL HEAT FLUX CORRELATION" AND EMF-2310, REVISION 1, SUPPLEMENT 2P, REVISION 0, "SRP CHAPTER 15 NON-LOCA METHODOLOGY FOR PRESSURIZED WATER REACTORS" (EPIDS L-2021-TOP-0004 AND L-2022-TOP-0008)

Dear Mr. Peters:

By letters dated December 16, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21356A051) and February 24, 2022 (ADAMS Accession No. ML22060A118), Framatome, Inc., submitted Topical Reports (TRs) ANP-10311P, Revision 1, Supplement 1P, Revision 0, "COBRA-FLX: ORFEO-HMP Critical Heat Flux Correlation," and EMF-2310, Revision 1, Supplement 2P, Revision 0, "SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors," to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. TRs ANP-10311P, Revision 1, Supplement 1P, Revision 0, and EMF-2310, Revision 1, Supplement 2P, Revision 0, focuses on critical heat flux (CHF) models.

The NRC staff conducted a joint audit of the two CHF related TRs, ANP-10311P, Revision 1, Supplement 1P, Revision 0, and EMF-2310, Revision 1, Supplement 2P, Revision 0, June 13-16, 2022, to establish a better understanding of the CHF models described in the TRs. The audit supported the NRC staff's efforts in establishing a clear understanding of the CHF models. At the conclusion of the audits, the NRC staff and Framatome representatives discussed draft open items. The results of the audit provided additional information to support the NRC staff safety evaluations on the TRs. Enclosed for your information is a copy of the audit report.

G. Peters

- 2 -

Please contact Ngola Otto at 301-415-6695 or via e-mail at Ngola.Otto@nrc.gov with any questions you may have regarding this letter.

Sincerely,

/RA/

Jonathan E. Evans, Acting Chief
Licensing Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 99902041

Enclosure:
Audit Report (Non-Proprietary)

REGULATORY AUDIT PLAN REPORT FOR FRAMATOME, INC.

TOPICAL REPORTS ANP-10311P-A, REVISION 1, SUPPLEMENT 1P, REVISION 0,

“COBRA-FLX: ORFEO-HMP CRITICAL HEAT FLUX CORRELATION,” AND EMF-2310,

REVISION 1, SUPPLEMENT 2P, REVISION 0, “SRP CHAPTER 15 NON-LOCA

METHODOLOGY FOR PRESSURIZED WATER REACTORS”

PROJECT NO. 728

(EPIDS L-2021-TOP-0004 and L-2022-TOP-0008)

1.0 BACKGROUND

By letters dated December 16, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21356A051) and February 24, 2022 (ADAMS Accession No. ML22060A118), Framatome, Inc., submitted critical heat flux related Topical Reports (TRs) ANP-10311P-A, Revision 1, Supplement 1P, Revision 0, “COBRA-FLX: ORFEO-HMP Critical Heat Flux Correlation,” and EMF-2310, Revision 1, Supplement 2P, Revision 0, “SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors,” to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. The NRC staff proposed a joint audit in an effort to increase efficiency in the review.

2.0 REGULATORY AUDIT OBJECTIVES

The objectives of the audits were to increase review process efficiency through direct interaction with Framatome’s technical experts. More specifically, the audits allowed the NRC staff to have extended discussions on the TRs, examine supportive documentation, and identify those areas of the review that need additional focus.

The NRC and Framatome audit participants are provided below.

NRC Participants

Name	Affiliation
Santosh Bhatt	U.S. Nuclear Regulatory Commission (NRC)
Ngola Otto	NRC
Joshua Kaizer	NRC

Framatome Participants

Name	Affiliation
John Adams	Framatome Inc. (Framatome)
Mihea Angheliescu	Framatome
Tony Attard	Framatome
Buck Barner	Framatome
Morris Byram	Framatome

Marc Dziuba	Framatome
-------------	-----------

3.0 REGULATORY AUDIT BASES

Regulatory guidance for the review of fuel system materials and designs and adherence to Title 10 of the *Code of Federal Regulations*, Appendix A to Part 50, General Design Criteria (GDC)-10, "Reactor Design," is provided in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" (SRP), Section 4.4, "Thermal and Hydraulic Design." In accordance with SRP Section 4.4, the objectives of the thermal and hydraulic designs safety review is to provide reasonable assurance that there should be a 95-percent probability at the 95-percent confidence level that a hot fuel rod in the reactor core will not experience a departure from nucleate boiling or a transition condition during normal operation or anticipated operational occurrences.

4.0 DISCUSSION

The NRC conducted an in-person audit at the Framatome facilities in Lynchburg, VA beginning June 13, 2022, and exiting June 16, 2022. The audit focused on ensuring the NRC staff had the appropriate understanding of the material presented in the TRs. No regulatory decisions were made. Any information exchanged that the NRC staff believed was necessary to achieve their regulatory conclusion was formally requested in a Request for Additional Information (RAI).

5.0 CONCLUSION

The audit accomplished the objectives listed in Section 2.0 by allowing direct interaction with Framatome's technical experts. The NRC staff participants were able to obtain clarification on multiple questions and examine calculation notes and supporting documentation. The NRC staff issued RAIs on the open items discussed at the audit, where information was needed on the docket to support the NRC staff's safety evaluations.

SUBJECT: REPORT FOR JUNE 13-16, 2022, REGULATORY AUDITS REGARDING FRAMATOME INC. TOPICAL REPORTS, ANP-10311P-A, REVISION 1, SUPPLEMENT 1P, REVISION 0, "COBRA-FLX: ORFEO-HMP CRITICAL HEAT FLUX CORRELATION" AND EMF-2310, REVISION 1, SUPPLEMENT 2P, REVISION 0, "SRP CHAPTER 15 NON-LOCA METHODOLOGY FOR PRESSURIZED WATER REACTORS" (EPIDS L-2021-TOP-0004 AND L-2022-TOP-0008) DATED DECEMBER 22, 2022

DISTRIBUTION:

PUBLIC	SKrepel, NRR
RidsNrrOd Resource	JKaizer, NRR
RidsNrrDss Resource	CPeabody, NRR
RidsNrrLADHarrison Resource	SBhatt, NRR
RidsNrrDorl Resource	JEvans, NRR
RidsNrrDorlLLpb Resource	

EXTERNAL DISTRIBUTION:

Morris.Byram@framatome.com
 Anthony.attard.ext@framatome.com

ADAMS Accession No.: ML22353A604 (Audit Plan)

OFFICE	NRR/DORL/LLPB/PM	NRR/DORL/LLPB/LA	NRR/DSS/SFNB/BC
NAME	NOtto	DHarrison	SKrepel
DATE	12/19/2022	12/20/2022	12/21/2022
OFFICE	NRR/DORL/LLPB/BC (A)	NRR/DORL/LLPB/PM	
NAME	JEvans	NOtto	
DATE	12/22/2022	12/22/2022	

OFFICIAL RECORD COPY