



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

July 25, 2022

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

SUBJECT: REPORT FOR 2021 - 2022, REGULATORY AUDITS REGARDING
FRAMATOME INC. TOPICAL REPORT ANP-10339P, REVISION 0, "ARITA -
ARTEMIS/RELAP INTEGRATED TRANSIENT ANALYSIS METHODOLOGY"
(EPID L-2018-TOP-0034)

Dear Mr. Peters:

By letter dated August 28, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18242A443), Framatome, Inc., submitted Topical Report (TR) ANP-10339P, Revision 0, "ARITA - ARTEMIS/RELAP Integrated Transient Analysis Methodology" (ADAMS Package No. ML18242A480), to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. The proposed TR presents a coupled code system and evaluation models for the analysis of most pressurized water reactor (PWR) non-Loss-of-Coolant Accident events identified in Chapter 15, "Transient and Accident Analysis," of NUREG-0800 (Standard Review Plan).

The NRC staff conducted several virtual regulatory audits (see below) and one in-person audit (see below) to discuss major topics of the TR review associated with the request for additional information (RAI) responses received in March 2019, March 2020, July 2020, November 2020, and June 2021 (ADAMS Package Accession Nos. ML19078A260, ML20097E582, ML20237F488, ML20335A217, and ML21162A080 respectively). The results of the audit provided additional information to support the NRC staff safety evaluation of the TR. The audit report is enclosed.

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/

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

Docket No. 99902041
Project No. 728

Enclosure:
Audit Report (Non-Proprietary)

AUDIT REPORT FOR FRAMATOME INC. TOPICAL REPORT

ANP-10339P, REVISION 0,

“ARITA – ARTEMIS/RELAP INTEGRATED TRANSIENT ANALYSIS METHODOLOGY”

DOCKET NO. 99902041

PROJECT NO. 728

EPID: L-2018-TOP-0034

1.0 BACKGROUND

By letter dated August 28, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18242A443), Framatome, Inc. (Framatome), submitted Topical Report (TR) ANP-10339P, Revision 0, “ARITA - ARTEMIS/RELAP Integrated Transient Analysis Methodology” (ADAMS Package No. ML18242A480), to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. ANP-10339P, Revision 0 (ARITA) presents a coupled code system and evaluation models for the analysis of most pressurized water reactor non-loss-of-coolant accident (LOCA) events identified in Chapter 15 of NUREG-0800 (Standard Review Plan). In December 2018, the NRC staff completed an acceptance review of the TR and found additional information was necessary (ADAMS Accession No. ML18345A159) before a formal review effort could begin. The necessary supplemental information was submitted by Framatome in March 2019 (ADAMS Package Accession No. ML19078A260). The NRC staff’s review also relies upon information submitted by Framatome in March 2020, July 2020, November 2020, and June 2021 (ADAMS Package Accession Nos. ML20097E582, ML20237F488, ML20335A217, and ML21162A080 respectively) in response to request for additional information (RAI) questions from the NRC staff.

The NRC staff identified that many of Framatome’s RAI responses did not fully address the staff’s concerns. Therefore, the NRC staff conducted several virtual and an in-person regulatory audit on the following dates:

Virtual:

March 3, 4, 24, 25, 26, 2021 (ADAMS Accession No. ML21055A702)
April 22, 2021 (ADAMS Accession No. ML21110A149)
June 15, 2021 (ADAMS Accession No. ML21159A143)
July 9, 2021 (ADAMS Accession No. ML21187A126)
August 11-12, 2021 (ADAMS Accession No. ML21204A101)
November 8, 2021 (ADAMS Accession No. ML21309A105)
April 28, 2022 (ADAMS Accession No. ML22109A121)

In-person:

April 20-21, 2022 (ADAMS Accession No. ML22109A121)

The NRC also conducted an audit for this TR on December 7-11, 2020, and the report can be found in ADAMS at Package Accession No. ML21026A007.

The audits were held in accordance with the U.S. NRC, Office of Nuclear Reactor Regulation procedure as described in LIC-111, "Regulatory Audits," and under the guidance provided in LIC-500, "Topical Report Process."

Additionally, the NRC and Framatome participants held several closed meetings from January through April 2022, to discuss proprietary information in the RAIs, and they include:

January 13, 2022 (ADAMS Package Accession No. ML22081A359)
February 3, 2022 (ADAMS Package Accession No. ML22080A157)
February 17, 2022 (ADAMS Package Accession No. ML22081A317)
March 3, 2022 (ADAMS Package Accession No. ML22082A262)
March 16, 2022 (ADAMS Package Accession No. ML22080A116)
March 31, 2022 (ADAMS Package Accession No. ML22094A074)
April 7, 2022 (ADAMS Package Accession No. ML22097A315)
April 14, 2022 (ADAMS Package Accession No. ML22105A414)

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 obtain clarification on RAI responses, have extended discussions about differences in technical opinion, examine supportive documentation, and identify those areas of the review that need additional focus.

The NRC and Framatome participants for all of the audits conducted are provided below.

March 3, 4, 24, 25, 26, 2021:

NRC: Kevin Heller, John Lehning, Joshua Kaizer, Ngola Otto

Framatome: Buck Barner, Dick Deveney, Keith Higar, Jerry Holm, Tim Lindquist, Keith Maupin, Jeff Moore, C. Nithianandan, Yusen Qi, Roberto Rubilar, Bill Walters

April 22, 2021:

NRC: Kevin Heller, John Lehning, Joshua Kaizer, Ngola Otto

Framatome: Buck Barner, Dick Deveney, Keith Higar, Jerry Holm, Alan Meginnis, Tim Lindquist, Keith Maupin, Jeff Moore, C. Nithianandan, TJ Smiley, John Jones, Michelle Guzzardo, Kevin Segard, Chris Molseed, Bill Walters

June 15, 2021:

NRC: Kevin Heller, John Lehning, Ngola Otto

Framatome: Buck Barner, Alan Meginnis, Bill Walters, Keith Maupin

July 9, 2021:

NRC: Kevin Heller, John Lehning, Ngola Otto

Framatome: Buck Barner, Alan Meginnis, Bill Walters, Keith Maupin, Timothy Lindquist, Dick Deveney, Jeffrey Moore, John Jones, Yusen Qi, Tim Thomas

August 11-12, 2021:

NRC: Kevin Heller, John Lehning, Ngola Otto

Framatome: Buck Barner, Alan Meginnis, Bill Walters, Keith Maupin, Timothy Lindquist, Dick Deveney, Jeffrey Moore, John Jones, Yusen Qi, Roberto Rubilar

November 8, 2021:

NRC: Kevin Heller, John Lehning, Ngola Otto

Framatome: Buck Barner, Alan Meginnis, Bill Walters, Keith Maupin, Tim Lindquist, Dick Deveney, Jeffrey Moore, John Jones, Tim Thomas, Yusen Qi, Kevin Segard, Michelle Guzzardo, Tj Smiley, Chris Molseed, Calvin Ritchey, Keith Higar, Kent Abel

April 20-21, 2022:

NRC: Kevin Heller, John Lehning, Ngola Otto, Richard Chang

Framatome: Steve Lydzinski, Jacoben Tone, Buck Barner, Alan Meginnis, Bill Walters, Keith Maupin, Tim Lindquist, Jeffrey Moore, Keith Higar, Jim Horner, Dick Deveney, John Jones, Yusen Qi N. Nathian, Tj Smiley, Roberto Rubilar, Greg Hobson

April 28, 2022:

NRC: Kevin Heller, John Lehning, Ngola Otto, Jeremy Dean, Joshua Kaizer, Richard Chang

Framatome: Steve Lydzinski, Jacoben Tone, Buck Barner, Alan Meginnis, Bill Walters, Keith Maupin, Tim Lindquist, Jeffrey Moore, Keith Higar, Jim Horner, Dick Deveney, John Jones, Yusen Qi N. Nathian, Tj Smiley, Roberto Rubilar, and Greg Hobson

3.0 REGULATORY AUDIT BASES

Regulatory guidance for the review of fuel system materials and designs; the review of reactor physics, neutronics, and nuclear design; the review of transient and accident analysis methods; and adherence to Title 10 of the *Code of Federal Regulations*, Appendix A to Part 50, General Design Criteria (GDC)-10, "Reactor Design," is respectively provided in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" (SRP), Section 4.2, "Fuel System Design," Section 4.3, "Nuclear Design," and Section 15.0.2, "Review of Transient and Accident Analysis Methods."

4.0 DISCUSSION

The audits and closed meetings focused upon unresolved issues associated with the NRC staff's RAI questions. The NRC and Framatome participants used an RAI tracking list to document the status of each RAI before and after these discussions. Based on the audit discussions and meetings in 2021 and 2022, Framatome revised the responses to the RAIs (1, 7-11, 13, 14, 18, 25-27, 29-32, 35-41, 43, 48, 55, 57-60, 62-71, 76-78, 81-83, 86, and 88) and submitted these revisions on June 30, 2022 (ADAMS Package Accession No. ML22193A169).

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 RAI responses, examine calculation notes supporting the RAI responses, and discuss at-length differences in technical opinion. The clarifications and examination of calculation notes allowed the NRC staff to efficiently assess the RAI responses. The discussions on differences in technical opinion allowed the NRC staff and Framatome representatives to reassess positions and facilitate resolution of these differences.

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ADAMS Accession No.: ML22200A061 (Audit Report)

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