REGULATORY AUDIT PLAN FOR FRAMATOME TOPICAL REPORT

ANP-10339P, REVISION 0,

"ARITA – ARTEMIS/RELAP INTEGRATED TRANSIENT ANALYSIS METHODOLOGY"

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 for licensing applications. ANP-10339P, Revision 0 (ARITA) presents a coupled code system and evaluation models for the analysis of PWR non-loss-of-coolant accident (LOCA) events identified in Chapter 15 of NUREG-0800 (Standard Review Plan). In December 2018, the U.S. Nuclear Regulatory Commission (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 Accession No. ML19078A253). The NRC staff's review also relies upon information submitted by Framatome in March 2020, July 2020, and November 2020 (ADAMS Accession Nos. ML20097E381, ML20237F458, and ML20335A218, respectively) in response to request for additional information (RAI) questions from the NRC staff.

The NRC staff has identified that many of Framatome's RAI responses do not fully address the staff's concerns. Therefore, the NRC staff conducted a regulatory audit in December 2020 (ADAMS Package Accession No. ML21026A007) in an effort to increase efficiency in the review, facilitate discussion, and close the open items. At the close of this audit, both NRC staff and Framatome concluded that an additional regulatory audit of this nature would further enhance the efficiency of the review. The audit plan for the follow-up audit has been developed and is enclosed. The NRC staff will conduct this virtual audit under the guidance provided in LIC-500 (Topical Report Process) and LIC-111 (Regulatory Audits).

2.0 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," GDC-27, "Combined Reactivity Control Systems Capability," and GDC-35, "Emergency Core Cooling," is 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." In accordance with SRP Section 4.2, the objectives of the fuel system safety review are to provide reasonable assurance that: (1) the fuel system is not damaged as a result of normal operation and anticipated operational occurrences (AOOs), (2) fuel system damage is never so severe as to prevent control rod insertion when it is required, (3) the number of fuel rod failures is not underestimated for postulated accidents, and (4) coolability is always maintained.

3.0 REGULATORY AUDIT SCOPE

The NRC staff will conduct a two-day and a three-day audit online. This audit is expected to include discussion between the NRC staff and Framatome staff regarding areas of technical disagreement identified, and open items from the RAI responses. Details regarding the discussions and open items are provided below.

4.0 INFORMATION NEEDS

The NRC staff requests Framatome make available appropriate engineer(s) with knowledge of ARITA and any appropriate references, to address questions by the NRC staff.

Documents referenced in the TR should also be made available.

Major Discussion Topics

The following are topics on which there appear to be fundamental differences in technical opinion between NRC staff and Framatome staff. These topics are intended to be discussed on the first day of the audit:

1. Discussion of meeting Regulatory Requirements with regard to uncertainty sampling approach (RAI 11).

2. Acceptability of sampling truncation range for certain physical parameters (RAIs 9, 38).

3. Conservativeness of a uniform distribution when the true distribution is unknown (RAIs 9, 57).

4. Simultaneous versus univariate figures of merit with respect to margin (RAI 8).

5. Acceptability of approach to assessing Transient Cladding Strain (RAIs 16, 20).

General Discussion Topics

The following are topics for which it was concluded in the December 2020 audit that additional documentation was needed.

1. Sampling approach for parameter TH-12a (RAIs 54, 55).

2. Discussion of the calculational procedure and sampling process associated with RAI 59.

3. Audit of errata document for RAI 9; the sampling approach for some parameters may have changed in response to discussions had in the December 2020 audit.

4. Identify any RAI responses that may need expanded responses.

Addressing Individual RAIs

Once discussion of the major and general topics above has occurred, the NRC staff will proceed to step through each individual RAI from ANP-10339Q4P and seek resolution of the associated concerns.

5.0 TEAM ASSIGNMENTS

Kevin Heller, Technical Reviewer (NRR/DSS/SFNB)
John Lehning, Technical Reviewer (NRR/DSS/SFNB)
Joshua Kaizer, Technical Reviewer (NRR/DSS/SFNB)
Ngola Otto, Project Manager (NRR/DORL/LLPB)
Ken Geelhood, Pacific Northwest National Laboratory (PNNL)
Bruce Schmitt, PNNL
Dave Engel, PNNL
David Richmond, PNNL

6.0 LOGISTICS

Audit Dates: Wednesday, March 3rd – Thursday, March 4th, 2021 and Wednesday, March 24th – Friday, March 26th, 2021.

The audit is scheduled to begin each day at 9:00am Eastern Standard Time. Time will be allocated for specific topics during each day of the audit as presented below:

Audit Agenda

	Tuesday	Wednesday	Thursday
AM	Major Discussion Topics / RAIs	General Discussion Topics	Detailed RAI Discussion
PM	Major Discussion Topics / RAIs	Detailed RAI Discussion	Revisit Topics as Needed / TBD

Framatome should provide details for using an online platform which supports video call for the performing the audit (e.g., WebEx) or confirm that they are able to use the platform that can be provided by the NRC (i.e., Microsoft® Teams).

7.0 DELIVERABLES

A regulatory audit summary will be provided within 90 days of the completion of the audit.