REGULATORY AUDIT PLAN FOR FRAMATOME INC.

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 pressurized water reactor (PWR) 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 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 has proposed to conduct a regulatory audit at this point in the review process in an effort to increase efficiency in the review, facilitate discussion, and close the open items. 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 is 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 are not underestimated for postulated accidents, and (4) coolability is always maintained.

3.0 REGULATORY AUDIT SCOPE

The NRC staff will conduct a five-day audit online. This audit is expected to include one day for discussion between the NRC staff and Framatome staff regarding areas of technical disagreement identified during the review and four days for NRC staff and Framatome staff to review open items from the RAI responses. Details regarding the discussions and open items are provided below.

4.0 INFORMATION NEEDS

The NRC staff would like Framatome to make available the appropriate engineer(s) with intimate knowledge of ARITA and any appropriate references, to address any comprehension 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 (RAI questions 10, 11, 18, 57, and 62)

2. Legacy licensing basis issues: ARITA methodology may potentially be incompatible with plant bases developed using deterministic methods (RAI questions 15, 16, 17, and 21)

3. Framatome discussion on justification/necessity of sampling approach (RAI questions 18 and 62)

4. Reanalysis threshold and applicability of uncertainty distributions (RAI questions 13, 24, and 50)

Addressing Individual RAI questions

Once discussion of the major topics above has occurred, the NRC staff will proceed to step through each individual RAI question 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 Schmidt, PNNL
Dave Engle, PNNL

6.0 LOGISTICS

Audit Dates: Monday, December 7, 2020 – Friday, December 11, 2020.

Time will be allocated for specific topics during each day of the audit as presented below:

Table 1: Audit Agenda

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Major Discussion Topics / RAI Questions	RAI 9	Detailed RAI Discussion	Detailed RAI Discussion	Revisit Topics as Needed / To Be Determined
PM	Major Discussion Topics / RAI Questions	RAI 9 / Draft future RAI Responses	Detailed RAI Discussion	Recap of Potential Limitations & Conditions	Revisit Topics as Needed / To Be Determined

Framatome should provide details for using an online platform which supports video call for the performing the audit (e.g., WebEx) or confirm that it is 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.