



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

November 30, 2021

Matthew W. Sunseri, Chairman  
Advisory Committee on Reactor Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

SUBJECT: OEDO-21-00451 RESPONSE TO THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS LETTER IN REGARD TO SAFETY EVALUATION FOR FRAMATOME INC. TOPICAL REPORT ANP-10349P, REVISION 0, GALILEO IMPLEMENTATION IN LOCA METHODS

Dear Mr. Sunseri:

On behalf of the U.S. Nuclear Regulatory Commission (NRC) staff, I would like to thank you for the letter from the Advisory Committee on Reactor Safeguards (ACRS or the Committee), dated October 26, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21292A005), regarding the ACRS review of the NRC staff's safety evaluation (SE) of Framatome Topical Report (TR), ANP-10349P, Revision 0, "GALILEO Implementation in LOCA Methods." I appreciate the time and effort that the Committee has devoted to this subject, as reflected in meetings held with the ACRS Subcommittee on September 21, 2021, and the Full Committee on October 5, 2021.

During the 689<sup>th</sup> meeting of the ACRS, October 5-7, 2021, the ACRS reviewed "Proposed TR ANP-10349P, Revision 0." In letter dated October 26, 2021, the ACRS provided the following conclusions and recommendations on the proposed TR ANP-10349P, Revision 0:

1. The methodology documented in ANP-10349P, Revision 0, is a technically-sound approach for loss-of-coolant accident (LOCA) calculations for both large and small breaks within its demonstrated range of applicability.
2. The staff should issue the SE report after considering the items suggested in this letter.

The NRC staff reviewed the letter including the conclusions, recommendations, and summary, and agrees with its conclusions and appreciates the Committee's efforts.

The NRC staff will make the following updates to address the Committee's items for consideration prior to issuance of the final SE (ADAMS Accession No. ML21286A769):

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301-415-6695

Mathew Panicker, NRR/DSS  
301-415-2987

Item 1:

1. State the demonstrated range of applicability of the methodology. The staff should consider incorporating by reference the applicability ranges and limitations in the earlier GALILEO topical report (ANP-10323PA).

**Staff Response to Item 1:**

In the Final SE, the NRC staff will add the following Limitation and Condition:

The demonstrated range of applicability of the methodology, specifically RLBLOCA and SBLOCA (EMF-2103 Rev 3, and EMF-2328 Rev 0, and Supplement 1) and applicable range (not related to the thermo-mechanical method) of applicability of GALILEO topical report (ANP-10323P) shall be implemented in the supplement EM (ANP-10349).

Item 2:

2. State that the GALILEO methodology does not replace existing methodologies. COPERNIC and RODEX2 continue to be acceptable methodologies.

**Staff Response to Item 2:**

In the Final SE, the NRC staff will change words “replaces/replaced” with “supplement(s)/supplemented” where applicable to address the fact that the GALILEO FPC supplements the COPERNIC and SRELAP5.

Additionally, the NRC staff will add the following language to the Conclusion section of the SE:

GALILEO methodology does not replace the COPERNIC and RODEX2 methodologies, which continue to be acceptable.

Item 3:

3. Emphasize that the approval is based primarily on direct comparisons against experimental LOFT data. Code-to-code comparisons are valuable to supplement experimental data benchmarks but cannot replace them completely in future submittals.

**Staff Response to Item 3:**

In the Final SE, the NRC staff will add the following language to the Conclusion section:

The NRC staff's determination is based primarily on direct comparisons against experimental LOFT data. However, the NRC staff is aware of the fact that code-to-code comparisons are valuable to supplement experimental data benchmarks but cannot replace them completely in future submittals.

M. Sunseri

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The NRC staff appreciates the ACRS's review and looks forward to future interactions with the Committee.

Sincerely,

***/RA Andrea Kock for/***

Andrea D. Veil, Director  
Office of Nuclear Reactor Regulation

Docket No.: 99902041

cc: Chairman Hanson  
Commissioner Baran  
Commissioner Wright  
SECY

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