



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

December 14, 2021

MEMORANDUM TO: Geoffrey Miller, Acting Deputy Director
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

FROM: Pierre Saverot, Project Manager
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

A handwritten signature in black ink, appearing to read "Pierre Saverot", is located to the left of the signature line.

Signed by Saverot, Pierre
on 12/14/21

SUBJECT: SUMMARY OF NOVEMBER 29, 2021, MEETING WITH
FRAMATOME

Background

On November 29, 2021, an Observation Public Meeting was held by teleconference between the U.S. Nuclear Regulatory Commission staff and representatives from Framatome in anticipation of a letter authorization request, to be followed by an amendment request and a revision of the Certificate of Compliance (CoC), for the Model No. TN-B1 package. This Observation Public Meeting was noticed on November 22, 2021 Agencywide Documents Access and Management System Accession No. ML21326A045).

The attendance list and the publicly available presentation slides are provided as Enclosure Nos. 1 and 2, respectively.

Discussion

Framatome recently issued a 10 CFR 71.95 Report regarding the fuel channel side thickness exceeding the maximum dimension during the Browns Ferry reload. Framatome also found out that the latest Brunswick shipment of fresh fuel experienced unacceptable vibrations. As a consequence, Framatome should (i) improve the shock isolating system within the inner and outer containers of the packaging, which consists of multiple materials, (ii) perform a new criticality evaluation to address fuel assembly rotational orientation and (iii) correct some errors, identified by ORNL, in the h-poly cross section of SCALE.

CONTACT: Pierre Saverot, NMSS/DFM
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The shock isolating material, currently identified as natural rubber, will be now defined as neoprene, butyl, nitrile, natural or synthetic type rubber, and will also allow size and shape variations. The foam absorber pad, positioned under the fuel assemblies, currently identified as a polyethylene foam, will now include other material options such as discontinuous strips of rubber. Neither the shock isolating material, or the foam absorber pad has any primary safety functions: they are used to maintain the fuel assembly quality.

The inner and outer container lid gasket material, currently identified as natural rubber, will now include neoprene as a material option. The applicant noted that the purpose of gasket is not a pressure retaining seal and serves only as a dust seal; thus, it has no primary safety function.

The staff asked how the applicant arrived at the bromine, chlorides, fluorides (150 ppm) and sulfur (350 ppm) limits for neoprene, butyl, nitrile, natural or synthetic type rubbers and said that testing might eliminate some types of rubber that could be initially selected. Although the materials are not relied upon for any safety function, the staff said that the applicant needs to consider the long-term performance and degradation of the selected materials over time. Framatome confirmed that the rubber and gaskets are inspected before each shipment.

The new criticality evaluation will increase the allowable fuel channel thickness from 0.254 cm to 0.315 cm, establish a maximum density based on polyethylene, add a penalty for the h-poly cross section error, and include a new evaluation for fuel orientation. The applicant said that the CSI will increase from 1.0 to 1.5 due to the allowable fuel assembly rotation. In response to a staff's question on the potential over moderation of the system (increased K_{eff}) due to the thickness increase, the applicant referred the staff to the sensitivity study that was performed as part of the 71.95 report. The applicant also explained that the h.poly error was assessed in SCALE 6.2.2, that the new criticality evaluation will be performed with SCALE 6.3.3 but that Framatome will not be redoing the benchmarking.

A letter authorization request will be submitted on December 17, 2021, for a maximum of two transports with each transport including up to three TN-B1 packages, i.e., 6 channeled fuel assemblies, and additional empty packages. The Letter Authorization will not include the fuel rotation allowance. An amendment request will then be submitted in January 2022 for a revised CoC need date in the Fall of 2022. The staff did not express any concern about the schedules, and no regulatory commitments were made during this meeting.

Docket No. 71-9372
EPID L-2021-LLA-0201

Enclosures:

1. Meeting Attendees
2. Presentation Slides

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DOCUMENT DATE: December 14, 2021

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| NAME | PSaverot | SFiguroa | YDiaz-Sanabria | |
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Summary of November 29, 2021, pre-application meeting with Framatome for the Model No. TN-B1 package DATE December 14, 2021

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