



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

February 7, 2018

MEMORANDUM TO: Anthony H. Hsia, Deputy Director
Division of Spent Fuel Management, NMSS

FROM: Pierre Saverot, Project Manager **/RA/**
Spent Fuel Licensing Branch
Division of Spent Fuel Management, NMSS

SUBJECT: SUMMARY OF JANUARY 30, 2018, MEETING WITH
FRAMATOME

Background

Framatome requested this meeting to present and discuss proposed responses to the second request for additional information (RAI) letter dated November 16, 2017 (ADAMS ML17320A017) for the review of the Model No. TN-B1 package.

The meeting was noticed on January 11, 2018 (ADAMS ML18025B562). The meeting attendance list and presentation are provided as Enclosure Nos. 1 and 2, respectively.

Discussion

The RAIs requested the applicant to (i) discuss how the fuel mass was incorporated into the fuel rod model in the finite element analysis, (ii) include fuel rod acceptance and qualification tests for the ATRIUM-11 fuel rods and end caps, (iii) calculate the maximum bending strain in the cladding weld in the heat-affected zone, (iv) clarify that the bounding cladding stress has adequate margin when a liner is present, (v) justify that the testing resulted in no failure of the cladding after leak testing, and (vi) revise the criticality safety analyses or demonstrate that the case that was analyzed was bounding for the ATRIUM-11 fuel.

The response to the structural RAI was considered acceptable by staff. The strain in the heat affected zone was shown to be less than 1% while the maximum strain allowable is 14%; thus, there is plenty of margin. Staff was interested in the pin connection at the location of the weld and requested the LS-DYNA output file for the end drop. The applicant provided the file.

The proposed response to the materials RAI was deemed to be not satisfactory for a number of reasons: (i) the reference to the ASTM standard had been removed from the application while staff considers it to be important: a standard defines what a lot is, (ii) the statement on weld integrity verification by X-ray inspection or ultrasonic testing was not useful since only Helium leak testing or burst testing is performed, (iii) the frequency of the "periodical assessment" through burst testing was not defined, (iv) the definition of allowable flaw sizes was not included, and there was no other specific acceptance criteria for NDE testing. Thus, the applicant will update Section 8.2.2 by (i) rewriting this section specifically for the ATRIUM 11 fuel, (ii) adding acceptance criteria for testing and providing the definition of a lot, (iii) describing qualification

tests versus sampling testing, (iv) listing the types of sampling tests done, (v) noting the frequency of testing, and (vi) referencing the ASTM standard.

Staff said that the proposed response to the first thermal RAI appeared to be acceptable but requested some clarification because, for example, Table 3-5 mentions an 11x11 fuel assembly with a 1.1145 MPa fill pressure (corresponding to a non-liner clad) while, at the same time, the 11x11 fuel assembly was evaluated in the thermal calculation package with a liner clad and its fill pressure was limited to 0.851 MPa. Staff said that the applicant should explicitly state what will be shipped so that the certificate of compliance (CoC) reflects the correct contents and that the analyses should support the CoC contents. The applicant clarified this apparent confusion and will modify the RAI response to explain that both "liner" and "non-liner" clad fuels, which have identical inside/outside diameters and for which no credit is taken for the thickness, will be shipped, and that wording will be included in the application to justify that the criticality, structural, and thermal analyses used the most conservative approach that bounded both liner and non-liner clad fuels.

Regarding the second thermal RAI, staff said that the wording used in the thermal calculation package (FS1-0024572) is either not appropriate or inconsistent because incorrect conclusions could be drawn: for example, what is defined as leaktight by the applicant does not meet leaktight criteria after testing. Staff said that the SER language will have specific qualifiers to address this discrepancy, i.e., clarify both the wording on leak tight cladding and that the small leak after the drop test does not meet the definition of failure.

Regarding the criticality RAI, staff had noted that the applicant used the terminology of a maximum planar average enrichment while the entire criticality safety analyses were based upon an uniform 5% enrichment. Since these two definitions are different, staff will include a CoC condition stating that the maximum enrichment is 5% across the fuel assembly. The applicant agreed and stated this was also consistent with their site license requirements.

The revised application including the final responses to the RAIs will be submitted between the end of February and mid-March. Staff made no regulatory commitment during the meeting.

Docket No. 71-9372
EPID L-2017-LLA-0073

Enclosures:

1. Meeting Attendees
2. Presentation

SUBJECT: SUMMARY OF JANUARY 30, 2018, MEETING WITH FRAMATOME, DOCUMENT
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Framatome

ADAMS Package No.: ML18038B349 Presentation: ML18038B350

OFC	SFM	E	SFM	C	SFM	
NAME	PSaverot		S Figueroa		MRahimi	
DATE	02/05/2018		02/05/2018		02/07/2018	

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**Meeting Between Framatome and the
Nuclear Regulatory Commission
January 30, 2018
Meeting Attendees**

NRC/NMSS/SFM

Pierre Saverot
Yong Kim
Joe Borowski
Ricardo Torres
Gordon Bjorkmann
Zhian Li

FRAMATOME & ORANO

Tim Tate
Jim Davis
Kevin Elliot
Larry Tupper
Rick Migliore
Prakash Narayanan
Glenn Mathues

ATKINS

Tony Chung
David McDaniel

FRAMATOME (via conference call)

Bryan Flannigan
Michelle Guzzardo
Kevin Segard