



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

January 27, 2017

Mr. Tim Tate  
Environmental, Health, Safety,  
and Licensing  
AREVA Inc.  
2101 Horn Rapids Road  
Richland, WA 99354

SUBJECT: APPLICATION FOR MODEL NO. TN-B1 TRANSPORTATION PACKAGE –  
SUPPLEMENTAL INFORMATION NEEDED

Dear Mr. Tate:

By letter dated November 18, 2016, you submitted an application for amendment of the Model No. TN-B1 transportation package, Certificate of Compliance No. 9372. You requested approval of changes made to reflect the addition of ATRIUM 11 fuel assemblies. Staff performed an acceptance review of your application to determine if the application contains sufficient technical information in scope and depth to allow the staff to complete the detailed technical review.

This letter is to advise you that based on our acceptance review, the application does not contain sufficient technical information. The information needed to continue our review is described in the enclosure to this letter. In order to schedule our technical review, this information should be provided by February 17, 2017. If the information described is not received by this date, the application will not be accepted for review.

If you have any questions regarding this matter, please contact me at 301-415-5253.

Sincerely,

**/RA/**

Huda Akhavannik  
Project Manager  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-9372  
TAC No. L25164

Enclosure: Request for Supplemental Information

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Distribution: YKim, SGhrayeb, ASotomayor-Rivera, JBobrowsky, CKenny, RTorres, ZLi  
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**ADAMS Accession No.: ML17030A006**

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|--------------|-------------|----------|-----------------------|-----------|--------------------|----------|
| <b>OFC:</b>  | NMSS/SFM    | NMSS/SFM | NMSS/SFM              | NMSS/SFM  | NMSS/SFM           | NMSS/SFM |
| <b>NAME:</b> | HAkhavannik | SFiguroa | ASotomayor<br>-Rivera | JBorowsky | YDiaz-<br>Sanabria | TTate    |
| <b>DATE:</b> | 1/24/17     | 1/25/17  | 1/25/17               | 1/26/17   | 1/26/17            | 1/27/17  |
| <b>OFC:</b>  | NMSS/SFM    |          |                       |           |                    |          |
| <b>NAME:</b> | JMcKirgan   |          |                       |           |                    |          |
| <b>DATE:</b> | 1/27/17     |          |                       |           |                    |          |

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AREVA INC.  
DOCKET NO. 71-9372  
REQUEST FOR SUPPLEMENTAL INFORMATION

**3.0 Thermal**

- 3-1 According to the application's "Overview of changes to FS1-0014159", the amendment seeks to include the ATRIUM 11 fuel as content. However, staff has confirmed that there were changes from the current safety analysis report (SAR) Table 3-5 values associated with the previously approved 8x8, 9x9, and 10x10 fuel. There was no demonstration in the proposed SAR that analyses in the previous SAR bound the new ATRIUM 11 fuel and the updated Table 3-5 values. In addition, define the term "current limiting fuel designs" used in Table 3-5 and explain how these parameters can be updated without demonstration that previous analyses bound the changes. An acceptable demonstration should reflect all normal conditions of transportation and hypothetical accident conditions testing including the effect of a hypothetical accident condition 30-foot drop.

This information is needed to determine compliance with 10 CFR 71.35 and 71.51.

**5.0 Shielding**

- 5-1 Provide analysis that demonstrates the Model No. TN-B1 transportation package complies with the dose rate limits established by 10 CFR 71.47(a) for both normal conditions of transport and hypothetical accident conditions.

Since this is a Type B package, the applicant must provide a shielding analysis for staff review. The applicant has stated that the contents of the Model No. TN-B1 require no shielding since unirradiated fuel gives off no significant gamma or neutron radiation. Any shielding provided by the packaging is not credited. However, the applicant has not provided any justification to support this conclusion.

This information is needed to ensure compliance with the requirements in 10 CFR 71.47(a), 71.51(a)(1), and 71.51(a)(2).

**Observations**

*Thermal*

- 3-1 Demonstrate that the integrity of the cladding's containment boundary of the modified fuel assemblies are bounded by the previous hypothetical accident condition drop tests and the subsequent hypothetical accident thermal condition.

SAR Section 2.7.4 stated that the maximum hypothetical accident condition testing temperature for an earlier-designed fuel assembly was 921 K (1198°F) and that the fuel rod pressure due to accident conditions does not exceed 508 psig (522.7 psia). The SAR also stated that the fuel rods have a rupture pressure of approximately 520 psi. It was not evident that deformed fuel rods (of the modified fuel assemblies), after the hypothetical accident condition 30 ft drop (end drop, side drop, etc.) and puncture tests, would maintain containment integrity at high temperatures and pressures (e.g., 1198°F

Enclosure

and 508 psig). For example, the maximum strain of the deformed cladding after the ambient temperature drop tests was not compared to the maximum strain of the modified fuel assembly's deformed cladding (post-drop test condition) that is also pressurized and at a high temperature due to the hypothetical accident thermal condition.

This information is needed to determine compliance with 10 CFR 71.51(a)(2) and 71.73.

*Operating Procedures*

- 7-1 Update Section 7.1.2, "Loading of Contents," to include discussion of loading loose rods for the 11x11 design rods. Section 7.1.2, "Loading of Contents," includes discussion of loading loose rods for 10x10, 9x9, and 8x8 design rods but does not include the 11x11.

This information is needed to determine compliance with 10 CFR 71.87(f).