

March 31, 2010

Mr. Richard Boyle, Chief  
Radioactive Materials Branch  
Office of Hazardous Materials  
Technology  
U.S. Department of Transportation  
400 Seventh Street, S.W.  
Washington, DC 20590

SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION FOR  
REVIEW OF THE MODEL NO. JRF-90Y-950K PACKAGE

Dear Mr. Boyle:

This refers to your request dated July 20, 2009, for a recommendation concerning the revalidation of the Model No. JRF-90Y-950K package, Japanese Certificate of Approval No. J/119/B(U)F-96, Revision 11. Staff requested additional information by letter dated November 5, 2009. The U.S. Department of Transportation responded by letter dated December 23, 2009. Enclosed is a second request for additional information needed to continue the review for revalidation of the JRF-90Y-950K package. Our established schedule provides a recommendation date of June 30, 2010, for the JRF-90Y-950K package. We request that you provide this additional information by May 11, 2010, or earlier if possible. Inform us at your earliest convenience, but no later than May 11, 2010, if you are not able to provide the information by that date. To assist us in re-scheduling your review, you should include a new proposed submittal date and the reasons for the delay.

Please reference Docket No. 71-3036 in future correspondence related to this request. The staff is available to meet to discuss your proposed responses. If you have any questions regarding this matter, I may be contacted at (301) 492-3339.

Sincerely,

**/RA/**

Kimberly J. Hardin, Senior Project Manager  
Licensing Branch  
Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-3036  
TAC No. L24357

Enclosure: Request for Additional Information

March 31, 2010

Mr. Richard Boyle, Chief  
Radioactive Materials Branch  
Office of Hazardous Materials  
Technology  
U.S. Department of Transportation  
400 Seventh Street, S.W.  
Washington, DC 20590

**SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION FOR  
REVIEW OF THE MODEL NO. JRF-90Y-950K PACKAGE**

Dear Mr. Boyle:

This refers to your request dated July 20, 2009, for a recommendation concerning the revalidation of the Model No. JRF-90Y-950K package, Japanese Certificate of Approval No. J/119/B(U)F-96, Revision 11. Staff requested additional information by letter dated November 5, 2009. The U.S. Department of Transportation responded by letter dated December 23, 2009. Enclosed is a second request for additional information needed to continue the review for revalidation of the JRF-90Y-950K package. Our established schedule provides a recommendation date of June 30, 2010, for the JRF-90Y-950K package. We request that you provide this additional information by May 11, 2010, or earlier if possible. Inform us at your earliest convenience, but no later than May 11, 2010, if you are not able to provide the information by that date. To assist us in re-scheduling your review, you should include a new proposed submittal date and the reasons for the delay.

Please reference Docket No. 71-3036 in future correspondence related to this request. The staff is available to meet to discuss your proposed responses. If you have any questions regarding this matter, I may be contacted at (301) 492-3339.

Sincerely,

**/RA/**

Kimberly J. Hardin, Senior Project Manager  
Licensing Branch  
Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-3036

TAC No. L24357

Enclosure: Request for Additional Information

DISTRIBUTION: SFST r/f NMS r/f CRegan DNaujock BWhite ERedmond

G:\SFST\Hardin\Revalidations\JRF-90Y-950K RAls 4-2010.doc **ADAMS Accession No. : ML100900199**

<b>OFC:</b>	SFST	E	SFST		SFST		SFST		SFST	
<b>NAME:</b>	KHardin		MDeBose		MCall		LCampbell		EBenner	
<b>DATE:</b>	3/29/2010		3/30/2010		3/30/2010		3/31/2010		3/31/2010	

**C = COVER**

**E = COVER & ENCLOSURE**

**N = NO COPY**

**OFFICIAL RECORD COPY**

**Department of Transportation**  
**Docket No. 71-3036**  
**Request for Additional Information**  
**Model No. JRF-90Y-950K Package**

By letter dated July 20, 2009, the Department of Transportation submitted a request to the U.S. Nuclear Regulatory Commission to provide a recommendation concerning the revalidation of the Model No. JRF-90Y-950K package, Japanese Certificate of Approval No. J/119/B(U)F-96, Revision 11. This second Request for Additional Information (RAI) identifies information needed by the U.S. Nuclear Regulatory Commission (NRC) staff in connection with its review of the application. Each individual RAI describes information needed by the staff for it to complete its review of the application to determine whether the applicant has demonstrated compliance with regulatory requirements.

**General Information**

1-1. Provide a licensing drawing of the metal spacer used with the KUR fuel elements.

In the previous RAI letter dated November 5, 2009, question 1-1 requested the package licensing drawings. It also included a request for the licensing drawing of the metal spacer used with the KUR fuel elements. While a drawing was provided, it is not a licensing drawing. Like the upper and lower fuel spacers for the contents, the metal spacer appears to be an important part of the package and should thus be included in the licensing drawings as are the upper and lower fuel spacers (with the current exception of the KUR fuel upper and lower spacers).

This information is needed to confirm compliance with TS-R-1 Paragraphs 671, 681, and 682.

1-2. Modify the licensing drawing, Drawing No. NXP-038-S09, to include the specifications for the upper and lower fuel spacers used with the KUR fuel contents.

Drawing No. NXP-038-S09 includes specifications for the fuel spacers for all the contents except the KUR fuel contents. Since the KUR fuel spacers serve the same function and have the same importance as the spacers for the other package contents, the KUR fuel upper and lower spacers need to be included in the referenced licensing drawing.

This information is needed to confirm compliance with TS-R-1 Paragraphs 671, 681, and 682.

- 1-3. Clarify that, with the exception of changes made in response to the foregoing questions, the revision number(s) of the licensing drawings are the same as the revision number(s) of these drawings used to support the previous applications for package approval and revalidation.

In the previous RAI letter, question 1-1 included a statement regarding the need to ensure that no design changes had been made that affect package performance, particularly the criticality design. One means to confirm this condition is to check that the revision number(s) of the licensing drawings remain the same as for the previous submittals. The drawing revision number(s) do not appear to be clearly indicated on the submitted licensing drawings; thus, staff is unable to confirm that no changes have been made. If changes have been made since the previous submittals, these changes should be clearly indicated and evaluated to demonstrate continued package compliance with the TS-R-1 requirements.

This information is needed to confirm compliance with TS-R-1 paragraphs 671, 681, and 682.

### **Criticality Review**

- 6-1. Clarify and correct, as needed, the material submitted in support of the response to question 6-6 of the previous RAI letter.

Question 6-6 of the previous RAI letter dated November 5, 2009, noted that the fuel elements inspection criteria were not consistent with, or supported by, the analysis provided for the KUR fuel elements. The applicant's response on page 20 of enclosure (b) to the response letter appears to make the appropriate changes to bring the inspection criteria into alignment with the analysis, as modified. However, the material in enclosure (c) is not supported by the criticality analysis, as modified. Thus, the meaning and use of this material is questionable. The material in enclosure (c) should be modified to be consistent with and supported by the criticality analysis, as modified.

This information is needed to confirm compliance with TS-R-1 paragraphs 502, 671, 681, and 682.

- 6-2. Provide the basis for the proposed CSI of 4.2 stated in the RAI response letter.

It is not clear from the applicant's response the basis for a CSI of 4.2 or how the criticality analysis, as modified, supports the proposed CSI. Proper analytical support is needed to justify the proposed CSI.

This information is needed to confirm compliance with TS-R-1 paragraphs 681 and 682.

- 6-3. Modify the criticality analysis for all package contents to evaluate partial flooding, providing a CSI and fuel element inspection criteria for each contents that are supported by the modified analysis.

The application indicates that the other package contents are more reactive than the proposed KUR contents. In response to staff's previous RAI letter, the applicant found it

necessary to modify the KUR criticality analysis and propose a non-zero CSI. The fuel element inspection criteria also required modification. With partial flooding, a condition made credible by the package design's use of polyethylene bags around the fuel element and the metal spacer, an infinite array of packages with KUR fuel was found to be critical (with a k-effective of about 1.1). Since the other package contents are more reactive than the KUR contents, similar changes are needed for them as well to ensure the package is critically safe (i.e., subcritical) for all approved contents. The current CSI of 0.0 (and the current fuel element inspection criteria) does not ensure this condition. Staff notes that question 6-4 of the previous RAI letter indicated that this should be addressed for all package contents. The analysis should also consider close reflection of the array to the closest extent possible due to the arrangement of the packages in the array.

This information is needed to confirm compliance with TS-R-1 paragraphs 502, 671, 681, and 682.

6-4. Clarify that packages containing the proposed contents will be shipped in accordance with the requirements derived from the criticality evaluation, as modified.

The material in enclosure (c) to the RAI response letter (and the letter itself dated December 23, 2009) indicates that the time between periodic package inspections is expected to exceed to the annual inspection requirement. The response material indicates that the packages have been in a loaded condition for a significant period of time (i.e., several months) and were loaded based upon the inspection criteria that were proposed in the application. Based upon these statements, these packages are currently in a configuration that is not supported by the criticality analysis, as modified, and the inspection criteria that are supported by that analysis. Thus, these packages will need to be reopened and the contents modified to be in compliance with the requirements established based on the now current criticality analysis. Since the packages will need to be reopened, it appears that the periodic inspection can be done at that time.

This information is needed to confirm compliance with TS-R-1 paragraphs 502, 671, 681, and 682 and the conditions of the approval certificate.