July 23, 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: APPLICATION FOR REVISION TO CERTIFICATE OF COMPLIANCE NO. 3043 FOR THE MODEL NO. MFC-1, DOCKET NO. 71-3043 – SUPPLEMENTAL INFORMATION NEEDED

Dear Mr. Boyle:

By letter dated April 29, 2010, you submitted an application for a revalidation recommendation for Certificate of Compliance (CoC) No. 3043 for the Model No. MFC-1 transportation package. The Model No. MFC-1 is a PWR fresh fuel package (Type A – Fissile Material). The revalidation is for Japanese Competent Authority Certificate J/105/AF-96, Revision 2. 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 as Request for Supplemental Information (RSI). Staff included observations to allow you to start earlier on items containing the potential to be asked at a later date. Responses to observations are not required for staff to begin a detailed technical review. Observations are not the result of a detailed technical review and may be resolved once staff begins a detailed review. In order to schedule our technical review, the RSI responses should be provided by August 13, 2010. If the RSI responses are not received by this date, the application may not be accepted for review. This letter confirms our phone call on July 22, 2010, with respect to the supplemental information needed and the projected date for your submittal on August 13, 2010. If you have any questions regarding this matter, please contact me 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. 71-3043
TAC No. L24445

Enclosure: Request for Supplemental Information and Observations

July 23, 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

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Docket No. 71-3043
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Enclosure: Request for Supplemental Information and Observations
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DEPARTMENT OF TRANSPORTATION

DOCKET NO. 71-3043

REQUEST FOR SUPPLEMENTAL INFORMATION (RSI) AND OBSERVATIONS

RELATED TO THE PROPOSED MFC-1 REVISION

General Information

RSI-1: Provide the application in the proper electronic format as described on the NRC website for docketing (both the proprietary and non-proprietary versions).

The PDF requirements are listed in Section 2.9 of http://www.nrc.gov/site-help/e-submittals/guide-electronic-sub-r5.pdf. Reference Materials for Electronic Submissions can be found at http://www.nrc.gov/site-help/electronic-sub-ref-mat.html.

- It is recommended that the Applicants download the Adobe Distiller Profile (base on the version of their Acrobat Pro), and use it to convert documents into PDF. Also, download Adobe Preflight Profile (base on the version of their Acrobat Pro), so you can verify whether your PDF(s) met NRC's requirements or not. Detailed instructions on how to download/install the Profile, and how to convert documents to PDFs are in the "Desk Reference Guide for PDF Generation" at http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=062020192.

- In the finalizing phase, prior to submitting the documents to the NRC, the Applicants should follow the examples in "Simplified Checklist Document Submittal Checklist" to ensure their PDFs complied to NRC's requirements.

This information is required by the staff to verify the compliance with 10 CFR Part 2, Subpart J and Subpart C, Part 13, and Part 110.

Structural

Observation-1: All the pertinent paragraphs in IAEA Regulations TS-R-1 (2005 Edition) concerning the “structural” discipline for this package have been addressed in the applicant’s Safety Analysis Report (SAR). This does not preclude the possibility of Requests for Additional Information (RAIs) upon further detailed review.

The detailed structural review will determine if the design meets the general requirements for Type A fissile material package, and the applicable Normal Conditions of Transport (NCT) and Hypothetical Accident Conditions (HAC) of transportation requirements of the TS-R-1 including pressure buildup within the rod.

Thermal

RSI-1: Validate the TRUMP thermal code using experimental data obtained for similar geometries as those requested, which include similar heat transfer characteristics. In lieu of the

validation, the staff would accept for review a thermal evaluation based on a more commercially available code (ANSYS, SINDA/FLUINT, FLUENT, etc.).

The thermal evaluation under HAC of transport are based on the TRUMP thermal code. As stated in the application, TRUMP is a heat transfer calculation program which was developed by Lawrence Radiation Laboratory in 1968. The staff is not familiar with this code.

This information is required by the staff to verify compliance with IAEA Regulations TS-R-1, 2005 Edition.

Observation-1: The staff would also recommend updating the modeling of the fuel assembly by calculating homogenized thermal properties based on the TRW report (TRW, Spent Nuclear Fuel Effective Thermal Conductivity Report prepared by TRW Environmental Safety Systems, Inc., for U.S. DOE, July 11, 1996). The methods described in the TRW report are considered acceptable to the staff for fuel assembly homogenization. The fuel assembly homogenization method provided in the application does not appear to preserve the actual geometry which could lead to inaccurate thermal results.

Materials

RSI-1: Provide specific alloy designations (SA-, or UNS number) or copies of the references for the material properties for Table II-A, Fig II-A.2,3, Table II-B.3 and tables in Sec. III. Designations such as SS400 are insufficient).

The materials designations are either too broad, such as SS400, or are Japanese designations (Sec Section III tables). In order to verify the chemical and mechanical characteristics of these materials, the US designations (SA-, or UNS number) or copies of the references for the material properties are needed.

This information is needed to determine compliance with TS-R-1 Section 646.

Containment

Observation-1: Per the acceptance review, no supplemental information is necessary for this fresh fuel package.

Furthermore, since this is a fresh fuel package (Type A), further containment review is necessary since the A2 value for Uranium is unlimited.

Criticality

Observation-1: No further supplemental information is necessary.

The detailed structural review will determine if the design meets the general requirements for a Type A fissile material package, and the applicable NCT and HAC of transportation requirements.

Shielding

Observation-1: No further supplemental information is necessary.

The detailed structural review will determine if the design meets the general requirements for Type A fissile material package, and the applicable NCT and HAC of transportation requirements.