



**PROPRIETARY INFORMATION**

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

April 8, 2016

MEMORANDUM TO: Bo Pham, Acting Deputy Director  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

FROM: Norma Garcia Santos, Project Manager */RA/*  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: SUMMARY OF MARCH 3, 2016, PRE-APPLICATION MEETING WITH  
GE HITACHI NUCLEAR ENERGY AND GLOBAL NUCLEAR FUEL TO  
DISCUSS CHANGES ASSOCIATED WITH THE MODEL NO. RAJ-II  
PACKAGE AMENDMENT REQUEST

Background

A partially-closed meeting was held on March 3, 2016, in Rockville, Maryland, at the request of the GE Hitachi Nuclear Energy and Global Nuclear Fuel (GNF or the applicant) to discuss the upcoming application to add GNF3 as authorized contents to the Model No. RAJ-II transport package. GNF may also seek a revision to the letter authorization dated October 31, 2014 (ADAMS<sup>1</sup> Accession No. ML14305A017), issued by the NRC in order to meet the needs of a customer. The latter possible licensing action was not discussed in detail during this meeting.

The meeting notice was added in ADAMS on February 8, 2016, (ADAMS Accession No. ML16039A214). The meeting was partially closed to the public, since, per GNF, the majority of the information shared was proprietary. A public version of the summary of the technical discussion is included in Enclosure 1. The non-public version of the summary of the technical discussion is included in Enclosure 2. The meeting attendees' list and agenda can be found in Enclosures 3 and 4, respectively. The public version of GNF's presentation slides is located in ADAMS Accession No. ML16069A261.

**Upon removal of Enclosure 2, this  
document is uncontrolled.**

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<sup>1</sup> Agencywide Documents Access and Management System.

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Several representatives from GNF and GE Hitachi Nuclear Energy attended and participated during the meeting. Staff from headquarters also attended the meeting. No regulatory decisions were made at this meeting. A summary of the non-proprietary technical discussion is included in Enclosure 1 of this document.

Docket No. 71-9309

CAC No. L25085

Enclosures:

1. Technical Discussion Summary
2. Technical Discussion Summary  
(Proprietary Information)
3. Meeting Attendance List
4. Meeting Agenda

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Distribution:

NRC Attendees      RPowell, RI    SWalker, RII    MKunowski, RIII      JWhitten, RIV

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**ADAMS P8 Package No.: ML16113A013    Memo ADAMS Accession No.: ML16113A014**

<b>OFC\DIV</b>	SFM	E	SFM	SFM
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<b>DATE</b>	4/5/2016		4/8/2016	4/8/2016

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## Technical Discussion Summary – Public Version

On March 3, 2016, GNF (the applicant) and NRC staff met to discuss details related to the upcoming licensing action request to revise the certificate of compliance of Model No. RAJ-II to add GNF3 fuel as authorized contents. The Model No. RAJ-II is a Type B (fissile) package. Some of the components of the package are the following:

1. Two compartments in the inner container
2. An inner container made of stainless steel
3. Thermal insulator encased in stainless steel sheets
4. Shock absorbers (honeycomb paper)
5. A vibro-isolating device

The package is approved to ship unirradiated fuel assemblies and loose rods. The assembly has a channel installed prior to shipment. The applicant mentioned that the contents can also be shipped without using the channel. The fuel arrays are 8×8, 9×9, and 10×10. To cushion the fuel during transport, the package may include cluster separators and polyethylene foam.

The applicant briefly discussed the regulatory tests performed on the Model No. RAJ-II. The applicant performed two full scale certification tests for the initial certification of the package. For testing purposes, the applicant used a fuel bundle with metal plates in the inner container cavity to account for the maximum payload (gross weight) of the package. The applicant mentioned that the deformation of the packaging was limited due to the shock absorbers and the results of the structural tests were considered in the criticality safety analysis. The applicant also mentioned that the package went through drop tests required in Japan prior to the drop tests (required in the U.S.) of the full scale package in Oak Ridge.

For the GNF3, the staff mentioned that the applicant needs to consider deformation of the fuel and define a containment boundary in its upcoming application. The applicant noted that it considers the fuel cladding as the containment boundary of the fuel. The staff mentioned that the containment boundary of the package would need to be defined due to the quantity of plutonium in the package. The applicant mentioned that it observed plastic deformation of the containment boundary during testing and that the package is not leak tight.

The applicant also discussed the main assumption in the criticality safety analysis. During this discussion the staff asked if the applicant would be submitting a shielding evaluation for the package. The applicant responded that it did not find it necessary based on the authorized contents for the Model No. RAJ-II. The staff pointed out that since the Model No. RAJ-II is a Type B package, the applicant needs to submit a shielding analysis as required in 10 CFR Part 71 regulations for Type B packages.