



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

July 25, 2017

MEMORANDUM TO: Anthony Hsia, Deputy Director
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

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

SUBJECT: SUMMARY OF JUNE 21, 2017, MEETING WITH GLOBAL
NUCLEAR FUEL - AMERICAS TO DISCUSS THE LETTER
AUTHORIZATION APPLICATION FOR TRANSPORTING
ACCIDENT TOLERANT FUEL LEAD ASSEMBLIES IN THE
MODEL NO. RAJ-II TRANSPORTATION PACKAGE (DOCKET
NO. 71-9309)

Background.

On June 21, 2017, a meeting was held in Rockville, Maryland, between Global Nuclear Fuel - Americas (the applicant), GE Hitachi, and the U.S. Nuclear Regulatory Commission (NRC) staff at the request of the applicant. The meeting was noticed on June 8, 2017, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17159A433) as a partially closed meeting. Enclosure 1 includes the summary of the closed portion of the meeting. Enclosure 2 includes the list of participants (in person or by phone). Enclosure 3 includes the meeting agenda. The meeting handouts can be found at ADAMS Package Accession No. ML17193A167.

Discussion.

The purpose of the meeting was to discuss the upcoming application for a letter authorization for transporting accident tolerant fuel (ATF) lead test assemblies in the Model No. RAJ-II transportation package. The applicant discussed details and responded to questions related to the upcoming submittal. The following items summarize the discussion during the open portion of the meeting.

**Upon removal of Enclosure 1, this
document is uncontrolled.**

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After introductions and opening remarks, the applicant discussed the milestones related to the letter authorization (slide No. 4 of the presentation). The applicant is planning to submit the letter authorization in mid-July 2017 and seeks approval by mid-November 2017, with a first shipment in early December 2017. The applicant indicated that the estimated shipping time frame was 2018. To accomplish this expedited schedule, the applicant indicated that it was willing to support phone calls, audits in its Maryland or North Carolina offices, and other types of communication needed to resolve issues that may arise during the review. The applicant indicated there were delays in the design phase, which delayed the submittal of the letter authorization. The applicant indicated that it just started phase 2 of the project, which includes adding the fuel assembly into the reactor for material characterization.

The applicant explained the plan for testing and shipping the accident tolerant fuel (ATF) lead test rods. The applicant explained that it plans to adjust the fuel parameters as they gathered data until 2019. The staff asked if the applicant is planning to submit subsequent letter authorizations to which the applicant responded that it is a possibility. The applicant noted the following regarding the estimated timeline of the project:

- Installation of the ATF lead test rods in a commercial reactor should occur by the end of calendar year 2017 and shipments to a reactor site for testing should continue for approximately three years (i.e., approximately until 2020).
- A submittal for a CoC revision may occur in 2019.
- An ATF prototype should be available in 2021.
- A “first generation ATF bundle” should be available in 2027.
- NRC regulatory activities related to this effort should be happening from 2017 until approximately 2025, which may require additional revisions of the Model No. RAJ-II certificate of compliance (CoC).

The staff indicated that the applicant needs to specify the following in the transmittal letter of the letter authorization:

- specific need for issuing the letter authorization in November 2017 (e.g., need for a shipment) including estimated shipment dates and business need(s). If the business need is considered proprietary by the applicant, that portion of the submittal shall be accompanied by an affidavit.
- the time frame covered by the letter authorization, and
- the number of shipments (per year, every six months, etc.)

The staff indicated that it could not commit to the proposed schedule at the time of the meeting.

The applicant noted that it would be using revision 9 of the safety analysis report (SAR or application) of the Model No. RAJ-II as the application for the letter authorization. The staff noted the following:

- Revision 9 of the application and its supplements would correspond to Revision 11 of the CoC for Model No. RAJ-II, which is currently under review and has not been issued.
- The information that resulted from recent responses to requests for additional information is not included in Revision 9 of the SAR; applications should be complete to minimize the potential for future RAIs.

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The applicant noted that the FeCrAl cladding is considered a “promising material,” which is one of the fuel categories on the U.S. Department of Energy (DOE) Accident Tolerant Program. The role of the chromium (Cr) is to provide temperature resistance during normal operations and accident conditions (e.g., design basis accident such as a loss of coolant accident in a reactor). The aluminum (Al) provides additional temperature resistance. The fuel inside of the FeCrAl cladding will be fresh uranium dioxide (UO₂) fuel.

The applicant was planning to include analyses for a Type B package in this application, since the RAJ-II is a Type B package and the FeCrAl fuel rods will be shipped with Type B content. Also, several parameters fall outside the current CoC for the Model No. RAJ-II, such as cladding material and dimensions. The staff indicated that since the content in the FeCrAl cladding is fresh fuel, the submittal related to the letter authorization can be for a Type A quantity because the A₂ limit for the proposed content is unlimited. The staff also indicated that the applicant should ensure that the analysis in the application considers the conditions of transport for the new content.

The staff indicated the following in terms of the application for the letter authorization:

- When using references in the application for the letter authorization, the applicant should specify the sections and information of any reference that they are relying upon in the application.
- The applicant should revise the application accordingly to add information related to the ATF.

The applicant noted that it would consider the feedback provided by the staff and would provide a proposed approach for the letter authorization in the next few weeks after discussing the outcome of this meeting with its staff and contractors.

Docket No. 71-9309

CAC No. L25223

Enclosures:

1. Technical Discussion (Closed Portion of the Meeting)
2. Meeting Attendees
3. Meeting Agenda

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SUBJECT: SUMMARY OF JUNE 21, 2017, MEETING WITH GLOBAL NUCLEAR FUEL - AMERICAS TO DISCUSS THE LETTER AUTHORIZATION APPLICATION FOR TRANSPORTING ACCIDENT TOLERANT FUEL LEAD ASSEMBLIES IN THE MODEL NO. RAJ-II TRANSPORTATION PACKAGE (DOCKET NO. 71-9309): DOCUMENT DATE: JULY 25, 2017

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This closes CAC No. L25223.

ADAMS Package Accession No.: ML17206A362

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NRC/GNF-A Meeting

June 21, 2017, 9:00 a.m. – 11:30 a.m.

Agenda

June 21, 2017
OWFN-12-B4
9:00–11:30 a.m.

Attendee List

Name	Organization
Norma García Santos	NRC
Bernard White	NRC
Wendy Reed	NRC
Joseph Borowsky	NRC
Caylee Kenny	NRC
Andrew Barto	NRC
Tae Ahn	NRC
Alexis Sotomayor	NRC
Jim Harrison	GNF
Russ Fawcett	GNF
Kate Martin	GNF
Mine Yilmaz	GNF
Rich Augi	GNF
Paul Cantonwine	GNF
Bob Rand	GNF
Christopher Kmiec	GEH
Patrick Davis	GEH
Lisa Schichlein	GEH
Brian Eber	GEH
Raul Rebak	GE
Chuck Paone	GE
Steve Buresh	GE
Randy Dunavant	Southern Nuclear
Nick Satterlee	Southern Nuclear
John Carmack	DOE

NRC/GNF-A Meeting
June 21, 2017, 9:00 a.m. – 11:30 a.m.
Agenda

Purpose

Pre-application meeting to discuss future submittal of the Model No. RAJ-II letter authorization.

Outcome

Gain an understanding of the contents of the application for the Model No. RAJ-II letter authorization to transport ATF lead assemblies.

Process

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|----|---|------------------|
| 1. | Introduction/Opening Remarks | NRC/GNF-A |
| 2. | Discuss Need for Letter Authorization for RAJ-II Shipping Assemblies Containing Lead Test Rods: <ul style="list-style-type: none">a. Introduce FeCrAl Cladding Materialb. Summary of FeCrAl Lead Test Project Goals and Objectives | GNF-A/NRC |
| 3. | Public Comment/Questions | NRC/GNF-A/Public |

Closed Portion of the Meeting

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|----|--|-----------|
| 4. | Overview of Differences Between FeCrAl Lead Test Rod Segments and Current CoC | GNF-A/NRC |
| 5. | Discuss Approach and Content of the Letter Authorization in the Following Areas: <ul style="list-style-type: none">a. Structural Evaluationb. Thermal Evaluationc. Containment Evaluationd. Shielding Evaluatione. Criticality Evaluationf. Package Operationsg. Maintenance | GNF-A/NRC |
| 6. | Closing Summary and Schedule Plans | GNF-A/NRC |
| 7. | Additional Questions and Comments | NRC/GNF-A |
| 8. | Closing Remarks | NRC/GNF-A |
| 9. | Adjourn | NRC |