

71-9330



Department of Energy

Washington, DC 20585

July 29, 2010.

Attn: Document Control Desk
Eric Benner
Chief Licensing Branch
Division of Spent Fuel Storage and Transportation,
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

By this letter the Department of Energy (DOE) is requesting the revision of the Nuclear Regulatory Commission (NRC) Certificate of Compliance (CoC) No. 9330, Revision No. 1, for the Model No. Advanced Test Reactor Fresh Fuel Shipping Container (ATR FFSC) Package. The DOE Idaho National Laboratory (INL) has subcontracted AREVA Federal Services (AFS) to prepare and submit an amendment of the ATR-FFSC Package CoC to include University of Rhode Island (URI) fuels as an authorized payload. Attachment A of this letter summarizes all of the changes made to the Safety Analysis Report (SAR) in Revision 5.

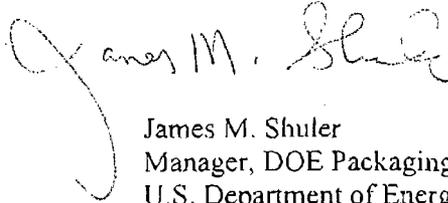
In support of URI's on-going operations and efforts, DOE requests an expedited review of this amendment to support obtaining fresh fuel for the facility. Any delays in URI reactor operations will have a strong negative impact on many companies and research institutions, including the National Institute of Health, that utilize the products and services based on reactor operations. Depending on the duration of the shutdown, the damage may be unrecoverable and the economic impact to many will be catastrophic.

Nine copies of Revision 5 of the SAR for the ATR FFSC package and Attachment A and two copies of a CD containing an electronic copy of the entire SAR document in PDF format, will be delivered today to NRC (Eight copies and one CD is for the NRC review team and the remaining copy and CD is for the Document Control Desk).



If you have any questions, please contact me at (301) 903-5513

Sincerely,

A handwritten signature in black ink that reads "James M. Shuler". The signature is written in a cursive style with a large, looping initial "J".

James M. Shuler
Manager, DOE Packaging Certification Program
U.S. Department of Energy
Office of Packaging and Transportation
EM-45, CLOV-2047
1000 Independence Ave., SW
Washington, DC 20585

cc: without Enclosures
Steve O'Connor EM-45
Jim Wade, DOE ID
Phil Noss, AREVA Federal Services, LLC

**Docket No. 71-9330, Model No. ATR FFSC Package
Changes Included in Revision 5 of the SAR**

The following list summarizes the changes made to the ATR FFSC SAR in Revision 5.

1. The principal change is the addition of the Rhode Island Nuclear Science Center (RINSC) fuel. This research reactor fuel is an aluminum plate-type fuel with strong similarities to the other fuels, particularly the MIT and MURR fuel types. An additional fuel handling enclosure (FHE) is included, which has a design similar to the MIT and MURR FHEs.

The RINSC fuel is low enriched (enrichment less than 20%). The criticality analysis conservatively assumes a high enrichment of up to 94%. In addition, for both NCT and HAC criticality evaluations, the very conservative assumption is made that the fuel is homogenized with water. Thus, since the worst-case configuration of the fissile material with the moderator is assumed, a structural evaluation of the fuel element is not necessary.

The only significant analytical revision resulting from the addition of the RINSC fuel is in the criticality section. Section 6.11, *Appendix C: Criticality Analysis for RINSC Fuel* provides a conservative evaluation of the criticality-related consequences of transporting the RINSC fuel. The thermal evaluation in Chapter 3 was revised to show that the thermal behavior of the RINSC fuel is bounded by the behavior of the MIT and MURR fuel elements. Chapter 1 was revised to include a complete description of the RINSC fuel and FHE. A new SAR drawing of the RINSC FHE has been added to Section 1.3.2, *Packaging General Arrangement Drawings*. Other chapters were subject to minor modifications as necessary to complete the incorporation of the RINSC fuel into the SAR.

2. The thermal analysis has been revised to change the flame temperature in the HAC fire event from 1,425 °F to 1,475 °F, as requested by the NRC staff in May of 2009. At that time, a calculation was submitted to the staff showing the thermal results of the revised flame temperature, but no change to the SAR was made. That calculation has now been incorporated into the SAR in this Revision 5.

Previously (through Revision 4 of the SAR), the radiation heat input to the package had been evaluated using a flame emissivity of 1.0 and a radiant flame temperature of 1,425 °F, which provides equivalent heat input as does using a flame emissivity of 0.9 and a radiant flame temperature of 1,475 °F. (Note that the convective flame temperature has always been 1,475 °F.) In the revised analysis, the radiant flame temperature was raised to 1,475 °F, but the flame emissivity was retained at a value of 1.0, which produces conservative results. As expected, the peak temperatures on the outside of the package in the HAC fire event are approximately 50 °F or less higher than before, with more modest increases for the interior parts and fuel elements. However, all temperatures remain within the previously established limits.

3. The last sentence of Section 1.2.2.1, *ATR Fuel Element*, has been revised to clarify the maximum local spacing gap between plates. Accordingly, it is requested that Revision 2 of the ATR FFSC Certificate of Compliance, Section 5.(b)(1), fourth sentence, be revised to read: "Intact ATR fuel elements contain 19 curved fuel plates fitted within aluminum side plates, and the maximum channel thickness between fuel plates is 0.087 inch in localized areas."



AFS-10-0259

July 19, 2010

Mr. Marvin Bennett
Eagle Research Group, Inc
Docket Manager DOE PCP
13241 Executive Park Terrace
Germantown, MD 20874-2648

Subject: REQUEST FOR AMENDMENT OF THE ATR FFSC PACKAGE CERTIFICATE OF COMPLIANCE, NRC Docket 71-9330

Dear Mr. Bennett,

AREVA Federal Services LLC hereby submits Revision 5 of the Safety Analysis Report (SAR) for the ATR FFSC package for your further submittal to the appropriate DOE and NRC authorities. Attachment 1 of this letter summarizes all of the changes made to the SAR in Revision 5. Included with this letter are the following documents:

- Eleven complete paper copies of Revision 5 of the Safety Analysis Report in new binders. Changes from prior Revision 4 are marked with a change bar in the margin. Due to the quantity of changed pages, it was elected to provide a complete revision consolidation. All pages, whether changed or not, are marked as Revision 5.
- Three CDs containing the electronic copy of the entire SAR document in PDF format.

We recommend that these materials be distributed as follows:

Recipient	Hard Copy in Binder	CD
NRC Program Manager	8	1
NRC Document Control Desk	1	1
DOE Packaging Certification Program (Dr. Shuler)	2	1

We request that you ensure that Attachment A to this letter be included with the materials received by the NRC.

AREVA FEDERAL SERVICES LLC

1102 Broadway Plaza, Suite 300, Tacoma, WA 98402-3526 – USA – Tel: 1 253.383.9000 – Fax: 1 253.383.9002



If I can be of any further assistance, please let me know.

Very Truly Yours,
AREVA Federal Services LLC

A handwritten signature in cursive script that reads 'Phil Noss'.

Phil Noss
Licensing Manager

Encl: as noted

Attachment A

Docket No. 71-9330, Model No. ATR FFSC Package Changes Included in Revision 5 of the SAR

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The only significant analytical revision resulting from the addition of the RINSC fuel is in the criticality section. Section 6.11, *Appendix C: Criticality Analysis for RINSC Fuel* provides a conservative evaluation of the criticality-related consequences of transporting the RINSC fuel. The thermal evaluation in Chapter 3 was revised to show that the thermal behavior of the RINSC fuel is bounded by the behavior of the MIT and MURR fuel elements. Chapter 1 was revised to include a complete description of the RINSC fuel and FHE. A new SAR drawing of the RINSC FHE has been added to Section 1.3.2, *Packaging General Arrangement Drawings*. Other chapters were subject to minor modifications as necessary to complete the incorporation of the RINSC fuel into the SAR.

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