



**Department of Energy**  
Washington, DC 20585

June 25, 2019

Mr. John McKirgan, Chief  
Spent Fuel Licensing Branch  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Material Safety and Safeguards  
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Dear John McKirgan:

The U.S. Department of Energy (DOE) requests an amendment of U. S. Nuclear Regulatory Commission Certificate of Compliance (CoC) Number 9330, Revision 13 for the Model ATR FFSC package (NRC Docket 71-9330) to simplify the definition of Small Quantity Payloads. The need date for this amendment is December 31, 2019.

Section 1.2.2.4 of the current SAR (Revision 14) describes the Small Quantity Payloads in terms of limits for dimensions (max and min), mass, fissile (U-235) mass, and enrichment, as well as explicitly providing common names with descriptions of Small Quantity Payload types (e.g., AFIP elements, U-Mo foils, etc.). DOE believes that the inclusion of common names for these contents leads to unnecessary certificate amendments with no safety benefit. For example, in recent months, DOE submitted two CoC 9330 amendment requests to NRC for approval of payloads (i.e., GRR-1 fuel elements and FUTURE-HFIR fuel plates) that fit within the existing Small Quantity Payload category, but whose common names are not explicitly referenced in the SAR.

The safety basis for Small Quantity Payloads is given in the second paragraph of Section 1.2.2.4 of the SAR, Revision 14:

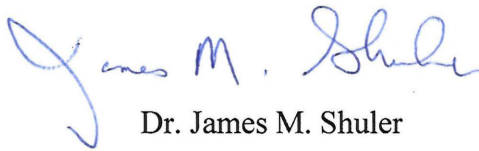
*“Although the fissile mass and enrichment is stated for each payload type, the acceptable limits for any small quantity payload are the bounding quantity of 400 g fissile mass and 94% enrichment.”*

Consequently, DOE believes that the Small Quantity Payloads should be defined to include only the items necessary for criticality safety, and not depend on common names or overly specific item descriptions. To this end, Section 1.2.2.4 of SAR Revision 15 has been changed to more clearly define the criticality characteristics of the Small Quantity Payloads by adding an exclusion from the payload of beryllium, carbon, deuterium, or materials with a hydrogen density greater than water. This exclusion ensures that the reactivity of the payload will not be greater than was evaluated in SAR Chapter 6. (The exception for 100 g of polyethylene and 4,000 g of cellulose plus neoprene is unchanged from the current approval and is explicitly accounted for in the criticality evaluation.)

The sections which describe Small Quantity Payloads in the current SAR do not give any information that is relevant to safety based on the revised payload description and based on safety analyses that are present in the currently approved SAR. Accordingly, these sections have been removed (Section 1.2.2.4.1 through Section 1.2.2.4.6).

To maintain consistency throughout the SAR, minor editorial changes have been made to other parts of Chapter 1, and to Chapters 2, 3, and 6. Note that no changes to the package design (SAR drawings), safety bases, or any analyses have been made. The enclosed application includes a roadmap detailing each change in SAR Revision 15, an insert-delete guide for updating a paper copy of SAR Revision 14 to 15, and suggested updates to the CoC to implement the changes, and the SAR Revision 15: electronic copies of these documents and complete Rev 15 SAR is included on the enclosed disk.

If you have any questions or need more details please call at 301-903-5513 or [james.shuler@em.doe.gov](mailto:james.shuler@em.doe.gov).



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