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October 6, 1999

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Licensing Section, Mail Stop 06F18
Spent Fuel Project Office
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
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11155 Rockville Pike
Rockville, MD 20852

Subject: Docket No.: 71-9282
Application for Model SPEC-300 Package
Response to NRC Request for Addition

Dear Mr. Chappell:

This submittal is in response to the Request for Additional Information (RAI) dated September 23, 1999. Each item listed in the RAI will be addressed point by point and in the order as they are listed. Due to the extent of additional information required, the application is being replaced in its entirety and is identified as Revision (1), dated October 6, 1999. The photographs submitted in Revision (0) on June 28, 1999 are to be re-installed into this revised application in Appendix 2.10. All other sections of the application are resubmitted.

RAI Item No.

Item 1-1 References to IAEA, State of Louisiana and US Department of Transportation regulations have been deleted from the SAR. Only regulations applying to 10 CFR Part 71 remain in the SAR.

Item 1-2(a) References to Corrosion Resistant Steel (CRES) have been deleted from all sections of the SAR and from the engineering drawings. CRES references have been replaced with the appropriate material grade (e.g. 316/316L stainless steel) for the package design.

Item 1-2(b) The thermal properties of bronze are clarified in section 3.2 of the SAR. The initial statement in section 3.1 of Revision (0) of the SAR, stating that bronze had a melting point of 704 C (1300 F) was incorrect and was removed from Revision (1) of the SAR. The correct melting point of bronze is 1020 C (1870 F) as stated in section 3.2 and therefore would not be affected by the 800 C (1475 F) Thermal Test of 10 CFR 71.73(4). Regardless, the bronze components used in the SPEC-300 are not

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structural parts as stated in section 3.5, Issue #1.

Item 1-2(c) Section 2.3.1 identifies a Two-Component Chocking Compound and an Epoxy Adhesive along with their mechanical properties. Specific product names are not being submitted due to Proprietary reasons. There are no other substituted or inconsistent names or descriptions for these two materials in the SAR.

Item 1-2(d) The affects of the polyurethane foam density are stated in section 1.2.1, Internal Structures. The minimum density of the foam is included on drawing 19B000, which is 13 lb/cu. ft.

Item 1-2(e) The Epoxy Adhesive properties (temperature resistance, compressive strength and adhesive tensile shear strength) are listed in section 2.3.1 and are sufficient to maintain shielding pad attachment during normal conditions of transport.

Item 1-2(f) Addressed in Items 1-3 below.

Item 1-3(a) Engineering drawings have been revised as applicable to include material specifications, dimensions, tolerances, etc. as necessary to meet 10 CFR Part 71 requirements. General Arrangement and Assembly drawings do not require the same level of detail as the engineering drawings since their purpose is only to depict sub-assembly or final assembly.

Item 1-3(b) The method of fabrication has been added to drawings, as applicable. Additionally, criteria has been added to the drawings for inspection in accordance with SPEC's Quality Assurance Program, NRC Approval No. 0102.

Item 1-3(c) Drawing No. B190700 has been revised to include the use of additional shielding pads and to specify the minimum density of the depleted Uranium shield, which is 18.3 g/cc.

Item 1-3(d) Drawing No. B190700 has been revised to reflect the minimum length of the depleted Uranium shield "notched".

Item 1-3(e) Drawing B190700 has been revised to specify the s-tube and the shield ear radii (2.875" r and 7.660 r, respectively)

Item 1-3(f) Drawing B190630 has been revised to indicate a full penetration weld between the enclosure and the base. Additionally, section 2.1.1 describes that a backing bar is used where the back side of the weld is inaccessible (between the bulkheads).

Item 1-4 Calculations, analyses and references to the package height of 12.65 have been modified to reflect the correct height of the package, which is 15 inches. Appendix

2.10, SPEC-300 Design Calculations has been corrected using the package height of 15 inches.

Item 1-5 Section 1.2.2 has been modified to address the use of a wire tamper seal to provide evidence that the package has/has not been opened by unauthorized persons.

Item 1-6 Specific analyses of the special form capsule have been deleted from the SAR. Section 1.2.3 and section 4 address the special form capsule.

Item 1-7 Section 1.2.3 addresses maximum cobalt source in output curies.

Item 1-8 The optional shielding pads are not used to meet accident dose limit requirements in 10 CFR 71.51 (a)(2). Section 8.1.6 addresses when shielding pads may be used.

Item 2-1 Section 2.7.6 provides a summary of the prototype testing performed including a description of the test procedures and initial conditions of the prototype for each test.

Item 2-2 Differences between the tested prototype and the package design were minute and had no affect on the testing results. Section 2.7.7 describes the minute differences between the tested prototype and the package design and provides rationale for determining that the differences would have no impact on the safety conclusions of the tests.

Item 2-3 Stress considerations in the materials used in the SPEC-300 caused by heat input due to insolation and maximum ambient temperature are described in section 2.6.

Item 2-4 Drawing 19B001 (Sheet 1; Note 5) and section 3.1 describe the venting for the package.

Item 2-5 Section 2.5.1 has been revised taking into consideration the flexibility of the enclosure cover as opposed to a supported rectangular beam with uniform loading.

Item 2-6 Section 2.6.8 describes the penetration test that was performed on the SPEC-300 package where the point of impact was the safety plug and where operational history provides evidence that the safety plug will remain installed during normal use conditions. There are no specific operating instructions for installation of the safety plug. The safety plug attachment fitting is a quick disconnect type fitting which does not require the use hand-tightening, torquing requirements, etc. The safety plug must be properly attached to the package and cannot be inadvertently "half attached" when properly installed.

Item 2-7 Section 2.6.1.1 provides the maximum and minimum temperatures and pressures for the package with the technical basis for the values.

Item 2-8	Section 2.7.4 provides a discussion and an analysis for the immersion test required by 10 CFR 717.73 (c)(6).
Items 2-9 (a) (b) (c)	These items are addressed in Appendix 2.10, SPEC-300 Design Calculations.
Items 2-10 (a) (b)	These items are addressed in Appendix 2.10, SPEC-300 Design Calculations.
Item 2-10(c)	The stress calculations in section 2.6.1.3 have been re-evaluated and are corrected.
Item 2-10(d)	This is addressed in Appendix 2.10, SPEC-300 Design Calculations.
Item 2-10(e)	This item is not pertinent since the calculation is no longer needed due the requirement of 2-10(a) of the RAI.
Items 2-11 (a)(b)(c)(d)	These items are addressed in Appendix 2.10, SPEC-300 Design Calculations.
Item 2-11(e)	Section 2.3.1 was revised to describe the correct yield stress and ultimate stress for 316/316L stainless steel.
Item 3-1 (a) (b) (c)	Section 3.5 of the SAR has been revised extensively addressing Hypothetical Accident Thermal Evaluation. See Chapter 3.5 to address Item 3-1(a) (b) and (c)
Item 7-1(a)	References to IAEA, State of Louisiana and US Department of Transportation regulations have been deleted from the SAR. Only regulations applying to 10 CFR Part 71 remain in the SAR.
Item 7-1(b)	Section 7.1.2 was revised to include the requirements of 10 CFR 71.87(a), regarding proper contents for the package and to state that the user must ensure that use of the package complies with the conditions of approval in the Certificate of Compliance.
Item 7-1(c)	Section 8.1.4 was revised to correct typographical error. 22 dpm/cm^2 is correct, not 220 dpm/cm^2.
Item 7-1(d)	Section 7.1.2 was revised to comply with the radiological requirements listed in 10 CFR 71.47 (External radiation standards for all packages).
Item 7-1(e)	There are no special controls, equipment or precautions for loading and preparing the package other than to safely monitor radiation levels during the loading of the source into the package, as stated in section 7.1.2.

Item 7-1(f) Section 7.2.2-B has been revised to describe the instructions regarding the tamper seal is addressed in section 7.2.2-B.

Item 7-1(g) Section 7.1.5 was revised to comply with the opening instructions (consignee notification) as required by 10 CFR 71.89.

Item 7-1(h) Procedure justification for verifying that a package is empty prior to shipment is addressed in section 7.3.

Item 8-1(a) Section 8.1.6 was revised to state when use of the optional shielding pads may/may not be used.

Item 8-1(b) Section 8.2.5 was revised to include a statement that there are no inspection and/or maintenance procedures for maintaining the integrity of the depleted uranium shield or the optional shielding pads.

Item 8-1(c) Section 8.1.6 was revised to address radiation profiling and applicability of correction factors.

Additionally, Section 1.2.1 was revised changing the rated lifting requirement of the package from 25 times the weight of the package (meeting ISO CD 3999) to 3 times the weight of the package in accordance with 10 CFR 71.45(a).

Please do not hesitate contact me if you need any further assistance or clarification.

Sincerely,

Kenneth N. Carrington
Government Liaison Assistant

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Enclosures: Six copies of Revision (1), dated October 6, 1999, to Application for Model SPEC-300 Package; Docket No.: 71-9282

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