



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

March 29, 2016

MEMORANDUM TO: Bo Pham, Acting Deputy Director
Division of Spent Fuel Management, NMSS

FROM: Pierre Saverot, Project Manager **/RA/**
Spent Fuel Licensing Branch
Division of Spent Fuel Management, NMSS

SUBJECT: SUMMARY OF MARCH 23, 2016, MEETING WITH SAVANNAH
RIVER NATIONAL LABORATORY

Background

Savannah River National Laboratory (SRNL) has been contacted by ReNuke Services regarding the use of the Model No. USA/9979/AF-96 (DOE) package for the relocation of material from the Texas A&M University's AGN reactor to the TRIGA reactor site. An NRC certificate of compliance (CoC) is required for this package because the material (fuel disks, and control rods, with less than 20% enriched uranium embedded in a polyethylene matrix) will be transported on public roadways for 3 to 4 miles, from the Texas A&M site to another site over non-university (public) land.

The meeting was noticed on March 3, 2016 (ML16063A444). The meeting attendance list and the presentation are provided as Enclosure Nos. 1 and 2, respectively.

Discussion

Approximately 3,000 Model No. 9979 packages, developed to replace the DOT UN1A2 specification packages, have already been fabricated to support the DOE material disposition campaigns, since the initial DOE certification in 2010.

The structural evaluation of the package was performed both by testing (free drop, water spray, corner drop, compression, penetration, crush and puncture) and analysis (external pressure, thermal gradients, stresses, shipping and vibration loads). The 30-ft drop tests (center of gravity, horizontal, top down, etc.) showed only very minor impact effects. Greater damages were observed from the crush test but did not significantly change the bulk configuration of the drum. No gross buckling was ever observed. In response to a question from staff on whether a slap-down test had been performed, SRNL confirmed it had been done and explained that the package "thumped" with no rebounds. The maximum payload of 250 lbs., simulated by sand and pea gravel, was used for testing and SRNL said that the containment of the package, i.e., the 30-gallon internal drum, has always been intact after all tests. Staff asked several questions on the split-ring closure system which "meets the intent of the regulations" according to DOT.

SRNL detailed the thermal features of the package, including the polyurethane foam, the insulation bag, the drum and lid vent holes to prevent pressurization during a thermal event, etc., and explained that the foam, poured as a liquid with temperature control during pouring,

rises and sets after pouring. SRNL has specific foam testing, density, and characterization data that will be included in the application. Staff explained that: (i) the thermal analysis should be long enough for a post-fire cooldown to see the temperature curve reaching stability, (ii) initial conditions of the hypothetical accident conditions of transport are derived from those at steady state in normal conditions of transport with solar heat, (iii) thermal contact between component surfaces is not encouraged, and (iv) the applicant shall use “perfect contact” between components for more heat into the canister during a 30-minute fire, while using the adiabatic gap between components to reduce heat from the package during a post-fire cooldown.

SRNL briefly discussed the shielding and criticality evaluations: most isotopes are at their A_2 limit, and simplistic MCNP calculations were performed. Staff asked if credit was taken for self-shielding, if the source has been put in different locations in the cavity of the package to find out where larger dose rates were obtained, if reconfiguration of contents had been analyzed, etc. Staff also stated that the use of dunnage, e.g., spacers between the plates, must be clearly spelled out in Chapter 7 and analyzed in the application.

SRNL explained that SRNL will be the certificate holder of the package and ReNuke will be the shipper. ReNuke said that the contents will be individually bagged, with the insulation bags provided in the package for combustible contents, strictly for public relations purposes. ReNuke stressed the need for an expedited review to account for an expected shipping timeframe this summer or early fall, in view of other constraints on the overall schedule of the project from the decommissioning of the building. Staff did suggest that SRNL holds several conference calls to obtain “alignment” on the contents of the application before any formal submittal.

Staff made no regulatory commitments during the meeting.

Docket No. 71-9979

CAC No. A33010

Enclosures:

1. Meeting Attendees
2. Presentation

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Distribution: Attendees, S. Ruffin, M. Lombard

G:\SFST\Saverot\71-9979\meeting summary March 23 2016.doc
G:\SFST\Saverot\71-9979\ Pre-application-NRC-032316. R2.pdf

ADAMS Package No.: ML16089A077 Memo No.: ML16089A082 Presentation: ML16089A085

OFC	SFM	E	SFM	C	SFM					
NAME	PSaverot		WWheatley		SRuffin					
DATE	03/28/2016		03/28/2016		3/29/16					

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**Meeting Between SRNL and the
Nuclear Regulatory Commission
March 23, 2016
Meeting Attendees**

NRC/NMSS/SFM

Pierre Saverot
Antonio Rigato
Steve Everard
Caylee Kenny
Alexis Sotomayor
Jeremy Smith

SRNL

Paul Blanton
Kurt Eberl
Steve Nathan

RENUKE

Mark Kirshe
Jerry Bergeron

PARAGON D&E

Dennis McGuinness

MEMBER OF THE PUBLIC

John F. Stang, Jr.

Enclosure 1