June 24, 2013

MEMORANDUM TO: Anthony H. Hsia, Deputy Director
Division of Spent Fuel Storage and Transportation, NMSS

FROM: Bernard White, Senior Project Manager **/RA/**
Licensing Branch
Division of Spent Fuel Storage and Transportation, NMSS

SUBJECT: SUMMARY OF MAY 30, 2013, MEETING WITH THE NATIONAL NUCLEAR SECURITY ADMINISTRATION TO DISCUSS THE PROPOSED DESIGN FOR THE M-380 PACKAGE (TAC NO. L24742)

Background

A meeting was held on May 30, 2013, in Rockville, Maryland, between the U.S. Nuclear Regulatory Commission (NRC) and the National Nuclear Security Administration (NNSA), to discuss a proposed package design to transport disused sources for recovery and management efforts related to global threat reduction.

The meeting was noticed on May 3, 2013 (see Agencywide Documents Access and Management System (ADAMS) Accession No. ML13123A080). The meeting attendance list is provided as Enclosure No. 1.

Discussion

The discussion generally followed the agenda (Enclosure No. 2). NNSA provided an overview of its Office of Packaging and Transportation and its activities that will support the certificate of compliance for the Model No. 380-B package. The Office of Packaging and Transportation will review the safety analysis report developed by its contractor and ensure that any necessary changes needed for certification are completed prior to submission to the NRC. In addition, it will submit the application to the NRC and be the certificate holder.

AREVA Federal Services provided a description of the proposed packaging design and contents. The sources are located in medical, industrial or research devices, but no credit will be taken for the source device integrity. The package will not contain any fissile material. Maximum weight of the package will be approximately 66,000 pounds. The package body will be constructed of 304 stainless steel and lead for shielding, with foam impact limiters. Depleted uranium and tungsten are also being considered. Internal to the package will be a ½-inch-thick security plate to minimize axial movement of the source device and the source itself. Dunnage will be used to block the devices in the package.

The package will be designed to be leaktight per the definition in American National Standards Institute (ANSI) in ANSI N14.5-1997, “Radioactive Materials - Leakage Tests on Packages for Shipment.” The package will be closed with a double O-ring seal which can be leak tested.

Foam impact limiter performance will be demonstrated using half-scale test. The test package will be equivalent weight. Structural analyses will be used to evaluate most damaging package orientation and foam behavior at different temperatures.

The structural evaluation will use general stress criteria from Regulatory Guide 7.6, "Design Criteria for the Structural Analysis of Shipping Cask Containment Vessels." Load combinations will be used from Regulatory Guide 7.8, "Load Combinations for the Structural Analysis of Shipping Casks for Radioactive Material." Preliminary structural results for the package indicate the g-loads from the bottom end drop and the side drop are less than 100g, with the center-of-gravity-over-corner drop g-loads are less than 80g. The maximum foam strain is less than 90% for the center-of-gravity-over-corner drop

The thermal evaluation will be evaluated with 205 watts of decay heat. The decay heat will be applied to the package inner surface and the applicant does not intend to calculate the temperature of the source or its device. Preliminary thermal evaluation shows the maximum seal temperatures are about 128°F for the normal condition of transport heat test and 245°F for the hypothetical accident condition fire test. Maximum lead temperature is 420°F.

The shielding evaluation will be performed for point source geometry. The shielding evaluation will show that the dose rates meet the requirements in Part 71, assuming that the point source is placed at any location within the package. While the package is being designed to transport cobalt-60, cesium-137, strontium-90, radium-226, and iridium-192, the design-basis source is 7,500 Ci of cobalt-60. The preliminary shielding evaluation indicates that the maximum dose rates are 135 mrem/hr on the surface and 6.8 mrem/hr 2 meters from the side of the conveyance.

Schedule:

The half-scale impact limiter tests are planned for late 2014 with NNSA review of the application in first quarter to NNSA 2015. The application is currently scheduled for submission to the NRC in the third quarter of 2015.

Docket No.: 71-9370
TAC Number: L24742

Enclosures:
1. Meeting Attendees
2. Agenda
3. NNSA Overview Presentation Slides
4. AREVA Federal Services Presentation Slides

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Distribution: (closes TAC No. L24742) NRC Attendees

ADAMS P8 Package No.: ML13175A129 ADAMD P8 Memo No.: ML13175A141

OFC	SFST	SFST	SFST
NAME	BWhite	MDeBose Via email	PSaverot for MSamspon
DATE	6/20/13	6/21/13	6/24/13

"C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy
OFFICIAL RECORD COPY

MEETING ATTENDEES

Meeting Title: Meeting to discuss proposed design for the Model No. 380-B transportation package

Participants: National Nuclear Security Administration (NNSA) and the NRC

Date: May 30, 2013, 9:00 – 11:00 a.m.

Location: U.S. NRC Headquarters, 3WFN 1-D-09

NAME	AFFILIATION	PHONE NUMBER
Bernie White	NRC/NMSS/SFST	(301) 287-0810
Bob Tripathi	NRC/NMSS/SFST	(301) 287-9194
Meraj Rahimi	NRC/NMSS/SFST	(301) 287-9233
Yong Kim	NRC/NMSS/SFAS	(301) 287-9150
David Tarantino	NRC/NMSS/SFST	(301) 287-9164
Christian Araguas	NRC/NMSS/SFST	(301) 287-9232
JoAnn Ireland	NRC/NMSS/SFST	(301) 287-0666
Haile Lindsay	NRC/NMSS/SFST	(301) 287-0665
Jimmy Chang	NRC/NMSS/SFST	(301) 287-9096
Daniel Forsyth	NRC/NMSS/SFST	(301) 287-0809
Tom Criddle	Federal Services	(253) 552-1337
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Kathy Schwendenman	NNSA Office of Packaging and Transportation	(505) 845-4185
Phil Noss	Federal Services	(253) 552-1321
Darin Westley	Los Alamos National Lab.	(505) 667-8119
Frank Cocina	NNSA	(202) 586-3855
Temeka Taplin	NNSA	(202) 586-9265
Blair Menna	Los Alamos National Lab.	(613) 818-7028

Meeting Agenda

Meeting with DOE/NNSA
May 30, 2013, from 9:00 a.m. to 11:00 a.m.
Room 3WFN 1-D-09

Purpose: Discuss proposed design for the Model No. 380-B transportation package.

- Introductions
- Description of the 380-B Packaging
- Description of the Payload
- Licensing Approach
- Preliminary Analysis Results
- Planned Project Schedule
- Discussion and Closure