



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

February 10, 2020

MEMORANDUM TO: Christopher Regan, Deputy Director
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

FROM: Bernard White, Senior Project Manager /RA/
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SUMMARY OF NOVEMBER 14, 2019, MEETING TO DISCUSS THE
TN-EAGLE TRANSPORTATION PACKAGE APPLICATION

Purpose

TN Americas LLC (TN) requested the partially-closed meeting to provide to the U.S. Nuclear Regulatory Commission (NRC) staff an overview of its design and preliminary evaluations for the Model No. TN-Eagle spent fuel transportation package.

Background

On November 14, 2019, a partially-closed meeting was held in Rockville, Maryland, with the NRC staff at the request of TN to discuss TN's design for the TN-Eagle transportation package. The meeting was noticed on October 25, 2019 (see Agencywide Documents Access and Management System (ADAMS) Accession No. ML19298B001). The list of meeting attendees, including those participating via telephone, is provided as Enclosure 1. The non-proprietary presentation slides are in ADAMS under Accession No. ML19291B709, and the proprietary slides are under Accession No. ML19291B711.

Discussion

The TN-Eagle will be a single-forged body surrounded by neutron shielding. The package will be designed to transport bare pressurized-water (PWR) and boiling-water reactor (BWR) spent fuel, and canisters for the Model Nos. NUHOMS® EOS-37PTH, and -89BTH (Docket No. 72-1042) storage system. The package is designed to hold up to 37 PWR fuel assemblies or 89 BWR fuel assemblies. The package will employ a double lid system (primary and secondary lids) for containment when transporting bare fuel but will only use the primary lid when transporting spent fuel inside a canister.

CONTACT: Bernard White, NMSS/DFM
(301) 415-6577

TN provided an overview of the package design and its preliminary evaluations for each technical discipline. TN plans to follow NUREG-2224, "Dry Storage and Transportation of High Burnup Spent Nuclear Fuel," for evaluation of high burnup spent fuel. The package would have single or double lid configurations, depending on the content. TN also discussed moderator exclusion and burnup credit for PWR fuel assemblies.

TN provided an overview of its materials, structural, containment, thermal, shielding, and criticality evaluations. TN discussed its fracture toughness calculations and package material properties and how these properties are utilized in the structural evaluation. TN also discussed the results of tests performed on its neutron shield material. TN also provided a description of the impact limiter and discussed the results of static and dynamic tests performed on the impact limiters.

TN discussed how it will demonstrate that the package's containment system will meet the containment criteria in Title 10 of the *Code of Federal Regulations* 71.51 for both the bare fuel and EOS canister configurations. TN also discussed its structural evaluation for the bare fuel and canister configurations, along with the assumptions that TN will use in evaluating criticality safety and package dose rates, based on the structural evaluation.

TN discussed its thermal analysis methodology and how it plans to evaluate packaging and the spent fuel temperatures for low and high burnup fuel. TN discussed briefly discussed how it will model the spent fuel assemblies, basket assembly, DSC assembly, TN Eagle packaging and impact limiters.

Finally, TN discussed its proposed approach to evaluating criticality safety and maximum dose rates for low and high burnup fuel, with bare fuel and fuel in a canister utilizing methodology in NUREG-2224. The evaluation will consider damage to the package, from the tests for hypothetical accident conditions as appropriate, based on the structural and thermal evaluations.

TN Americas LLC stated that it plans to submit its application in late 2020.

Docket No. 71-9382
EPID No. L-2019-LRM-0073

Enclosure:

1. Meeting Attendees

C. Regan

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DATED: February 10, 2020

Closes EPID No. L-2019-LRM-0073

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ADAMS Memo Accession No.: ML20038A196 * via email

OFFICE	DFM	DFM	DFM
NAME	BWhite	SFigueroa*	DDoyle*
DATE	12/23/19	12/26/19	02/08/20

MEETING ATTENDEES

Meeting Title: NOVEMBER 14, 2019, MEETING WITH TN AMERICAS TO DISCUSS THE PROPOSED APPLICATION FOR THE TN-EAGLE TRANSPORTATION PACKAGE

Participants: TN Americas LLC and the NRC

Date: November 14, 2019

Location: U.S. NRC Headquarters, O-4B06

NAME	AFFILIATION
In attendance	
Bernie White	NRC/NMSS/DFM
David Tang	NRC/NMSS/DFM
Darrell Dunn	NRC/NMSS/DFM
Nishka Devaser	NRC/NMSS/DFM
Ripert Hervé	TN International
Mariette Ludovic	TN International
Rahell Horoon	TN Americas
Philippe Phan	TN Americas
Hui Lui	TN Americas
Peter Vescovi	TN Americas
Lionel Antognelli	TN Americas
Sarah Onimus	TN Americas
Ricardo Rodriguez	NRC/NMSS/DFM
Dimitris Hadjiheritou	TN Americas
Jun Li	TN Americas
Andrew Robinson	TN Americas
Don Shaw	TN Americas
JoAnn Ireland	NRC/NMSS/DFM
Dan Doyle	NRC/NMSS/DFM
Meraj Rahimi	NRC/NMSS/DFM
Travis Tate	NRC/NMSS/DFM
Phone Attendees	
Chris Bajwa	NRC/NMSS/DFM
Jimmy Chang	NRC/NMSS/DFM
Veronica Wilson	NRC/NMSS/DFM
Drew Barto	NRC/NMSS/DFM
Joyce Tomlinson	Holtec International
Ben Seawright	Holtec International