



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

January 31, 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 DECEMBER 11, 2019, PARTIALLY CLOSED
MEETING WITH NAC INTERNATIONAL TO DISCUSS AMENDMENT
NUMBER 9 TO THE MAGNASTOR SPENT FUEL STORAGE CASK

Purpose

NAC International Inc. (NAC), requested the partially-closed meeting to provide the U.S. Nuclear Regulatory Commission (NRC) staff an overview of its application for Amendment No. 9 to Certificate of Compliance No. 1031 for the Modular Advanced Generation Nuclear All-Purpose Storage (MAGNASTOR) cask. NAC submitted the application on October 9, 2019 (see Agencywide Documents Access and Management System (ADAMS) Accession No. ML19296C938).

Background

On December 11, 2019, a partially-closed meeting was held in Rockville, Maryland, with the NRC staff at the request of NAC to discuss Amendment No. 9 for the MAGNASTOR storage system. The meeting was noticed on November 22, 2019 (see ADAMS Accession No. ML19326C273). The list of meeting attendees, including those participating via telephone, is provided as Enclosure 1. The non-proprietary presentation slides are provided as Enclosure No. 2, the proprietary presentation slides are provided as Enclosure No. 3.

Discussion

During the open portion of the meeting, NAC discussed the scope of the application, its reorganization of the technical specifications, and the timeframe NAC requested for approval. During the closed portion of the meeting NAC discussed implementation of the amendment at Three Mile Island (TMI), the new concrete overpack design, and provided an overview of the fuel loading patterns and the criticality safety, shielding, and thermal evaluations that form the safety basis for this amendment.

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This amendment supports dry cask loading and subsequent decommissioning of TMI Unit 1. To support the fuel loading at TMI, NAC requested the addition of a modified Babcock and Wilcox hybrid fuel assembly (BW15H2) which increases the enrichment limit; a new hybrid fuel assembly, the (BW15H5); four new heat load zoning patterns to accommodate higher heat load assemblies from the last core; a new concrete overpack; and conditions for transfer and loading of the fuel assemblies.

In reorganizing the technical specifications, NAC stated that it consolidated duplicative information in the technical specifications and, as much as possible, condensed information into fewer figures and tables. NAC stated that only duplicative information was deleted. NAC stated that it consolidated information on undamaged and damaged pressurized water reactor fuel and summarized loading patterns in a single table referencing a single fuel basket figure. In addition, NAC stated that a new table has been created to make it easier for users to find the applicable cool time tables.

NAC stated that Exelon is planning on loading as soon as possible and requested that the amendment be effective by the end of March 2021. NRC stated that its current schedule, which includes a single request for additional information, will allow for the certificate to be effective by the end of March 2021.

In the proprietary discussion, NAC provided an overview of the new concrete overpack and discussed how and why it differs from the currently approved designs. NAC proceeded to discuss the technical basis for requesting approval. NAC discussed its nuclear analysis including the criticality safety analysis and results for the new hybrid fuel assembly, the increased enrichment, the minimum soluble boron during loading, and the non-fuel hardware. Given the new fuel assembly type and overpack, NAC discussed the methodology and results for its dose rate analyses and how these analyses differ from previous analyses for other approved concrete casks. Next, NAC discussed its thermal evaluations and results including an overview of the methodology and heat load requirements for determining the new loading patterns.

Docket No. 72-1031
EPID No. L-2019-LLA-0220

Enclosures:

1. Meeting Attendees
2. Non-Proprietary Slides
3. Proprietary Slides

C. Regan

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DOCUMENT DATE: January 31, 2020

DISTRIBUTION:

DFM r/f
NRC attendees

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meeting\Summary for December 11 2019 meeting.docx

ADAMS Package Accession No.: ML20030C203

Memo ADAMS Accession No.: ML20030C204

Proprietary Slides ADAMS Accession No.: ML20030C207

Non-Proprietary Slides ADAMS Accession No.: ML20030C206

OFFICE	DFM	DFM	DFM
NAME	BWhite	WWheatley	DDoyle
DATE	01/06/2020	01/08/2020	01/31/2020

OFFICIAL RECORD COPY

MEETING ATTENDEES

Meeting Title: SUMMARY OF DECEMBER 11, 2019, PARTIALLY CLOSED MEETING WITH
NAC INTERNATIONAL TO DISCUSS AMENDMENT NUMBER 9 TO THE
MAGNASTOR SPENT FUEL STORAGE CASK

Participants: NAC International and the NRC

Date: December 11, 2019

NAME	AFFILIATION
In attendance	
Bernie White	NRC/NMSS/DFM
Marc Griswold	NAC
Mike Yaksh	NAC
George Carver	NAC
Allan Altera	NAC
Yong Kim	NRC/NMSS/DFM
Jorge Solis	NRC/NMSS/DFM
Eli Goldfeiz	NRC/NMSS/DFM
Jeremy Smith	NRC/NMSS/DFM
John Wise	NRC/NMSS/DFM
Haile Lindsay	NRC/NMSS/DFM
Ghani Zigh	NRC/RES/DSA
Yaira Diaz-Sanabria	NRC/NMSS/DFM
Dan Doyle	NRC/NMSS/DFM
Stephen Minnick	Exelon-TMI
Holger Pfeifer	NAC
Wren Fowler	NAC
Travis Tate	NRC/NMSS/DFM
Meraj Rahimi	NRC/NMSS/DFM
Phone Attendees	
Bob Brady	TMI
Carlyn Green	Ux Consulting
James Tusar	Exelon
Kim Hobbs	Exelon