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

August 2, 2017

MEMORANDUM TO: Anthony H. Hsia, Deputy Director
Division of Spent Fuel Management, NMSS

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

SUBJECT: SUMMARY OF JUNE 29, 2017, MEETING WITH NAC INTERNATIONAL TO DISCUSS THE AMENDMENT NO. 8 TO THE MAGNASTOR® STORAGE SYSTEM

Background

A meeting was held on June 29, 2017, in Rockville, Maryland, between NAC International (NAC) and the U.S. Nuclear Regulatory Commission (NRC) to discuss NAC's proposed application for Amendment No. 8 to the MAGNASTOR® storage system (Docket No. 72-1031).

The meeting was noticed on June 16, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17166A355). The meeting attendance list is provided as Enclosure No. 1.

Discussion

The primary reason for the meeting was for NAC to provide the NRC with an overview of its application for Amendment No. 8 to the MAGNASTOR® storage system. NAC submitted the amendment application on June 23, 2017 (ADAMS Accession No. ML17179A382).

NAC provided an overview describing the scope of the amendment. The proposed amendment adds a new damaged fuel basket and canister; transfer and concrete cask to be used for shorter pressurized-water reactor spent fuel, an alternate three-zone preferential loading pattern with fuel cooling times down to 2.5 years, and expanded non-fuel hardware specifications for additional decay times. The components for the damaged fuel basket is identical to the existing damaged fuel basket, with the exception that the height was reduced by 11.5 in. to account for the shorter fuel.

NAC provided an overview of the alternate three-zone preferential loading pattern that it proposed in Amendment No. 8. NAC discussed the steps involved in determining where and how to place fuel assemblies in each of the three zones and how, based on fuel assembly selection rules, cooler assemblies are placed next to hotter assemblies to distribute decay heat. NAC stated that its thermal analyses show that basket peak temperatures are lower than for the existing basket design.

CONTACT: Bernard H. White, DSFM/NMSS
(301) 415-6577

NAC discussed its results of the structural analyses for each of the new components. NAC's results show that all stresses it calculated for this amendment are bounded by existing calculations. NAC determined that the normal, off-normal, and accident conditions loads are bounded by existing analyses. In addition, NAC performed a thermal stress evaluation using the bounding temperature profile for alternate three-zone preferential loading pattern. NAC determined that the basket peak temperature is lower and thermal stresses are bounded by existing analysis. NAC performed a new finite element analysis for the vertical lift of the new transfer cask. NAC said that its results show a factor of safety greater than 6 for yield stress and 10 on ultimate stress.

NAC provided an overview of the thermal analyses for the new damaged fuel basket. NAC stated that it performed thermal calculations for a uniform heat load and 5 possible loading patterns. NAC stated that the results of its analyses show that the maximum temperatures for all normal, off-normal and accident conditions are bounded by previous analyses. NAC provided an overview of the calculations for transfer operations. The maximum temperatures for water and helium phases with the annulus circulating water system is lower than the temperatures for normal storage conditions. NAC also calculated the maximum temperatures and the time at which the maximum temperatures occur for vacuum, helium backfill, and canister transfer.

NAC's overview of its shielding analyses show that the dose rates from the new concrete cask are lower on top, higher on side, and lower at site boundary. The new transfer cask dose rates are lower than for the MAGANTRAN transfer cask number 2 dose rates on top, side and bottom. Occupational exposure dose results from previous analyses remain bounding.

Finally, NAC discussed its need for the amendment. NAC stated that it needs the certificate to be effective in October 2018 to support a loading campaign at a decommissioning reactor.

Copies of the presentation slides are provided in Enclosure No. 2.

Docket No. 72-1031
CAC No. L25229

Enclosures:
1. Meeting Attendees
2. Presentation Slides

SUMMARY OF JUNE 29, 2017, MEETING WITH NAC INTERNATIONAL TO DISCUSS THE AMENDMENT NO. 8 TO THE MAGNASTOR® STORAGE SYSTEM, DOCUMENT DATE: AUGUST 2, 2017

Distribution: NRC Meeting Attendees D. Marcano

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ADAMS P8 Package No.: ML17215A123 ADAMD P8 Memo No.: ML17215A124
Enclosure 2: ML17215A125

OFC	DSFM	DSFM	DSFM
NAME	BWhite	WWheatley	JMcKirgan
DATE	7/28/17	7/28/17	8/2/17

MEETING ATTENDEES

Meeting Title: Discussion of proposed Amendment No. 8 to Model No. MAGNASTOR storage system.

Participants: NAC International and the NRC

Date: June 29, 2017, 8:00 – 10:00 a.m.

NAME	AFFILIATION
Bernie White	NRC/NMSS/DSFM
Steve Everard	NRC/NMSS/DSFM
David Tang	NRC/NMSS/DSFM
Joe Borowsky	NRC/NMSS/DSFM
Eli Goldfeiz	NRC/NMSS/DSFM
Zhian Li	NRC/NMSS/DSFM
John McKirgan	NRC/NMSS/DSFM
Steve Sisley	NAC International
Phone Participants	
Wren Fowler	NAC International
Carlyn Green	Ux Consulting