



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

November 3, 2021

MEMORANDUM TO: Geoffrey Miller, Acting Deputy Director  
Division of Fuel Management  
Office of Nuclear Material  
Safety and Safeguards

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

SUBJECT: SUMMARY OF JUNE 30, 2021, MEETING WITH NAC  
INTERNATIONAL TO DISCUSS AMENDMENT NO. 10 TO THE  
MAGNASTOR® STORAGE SYSTEM

A handwritten signature in blue ink that reads "Bernard White".

Signed by White,  
on 11/03/21

Background

On June 30, 2021, a virtual meeting was held, at the request of the U.S. Nuclear Regulatory Commission (NRC) staff with NAC International (NAC) to discuss the NRC staff's proposed second request for additional information (RAI) on Amendment No. 10, Model No. MAGNASTOR® storage system. The list of meeting attendees is enclosed. There were no handouts used at the meeting.

By application dated December 9, 2019 (Agencywide Documents Access and Management System {ADAMS} Accession No. ML19345E594), as supplemented on May 13, 2020 (ADAMS Accession No. ML20143A102), February 25, 2021 (ADAMS Package Accession No. ML21067A041), and April 20, 2021 (ADAMS Accession No. ML21118A043), NAC submitted an application for Amendment No. 10 to the Model No. MAGNASTOR® storage cask. In its request, the applicant proposed to add a new metal storage overpack (MSO).

In its February 25, 2021, response to an RAI, NAC added Technical Specification 4.3j which requires the MSO to be stored inside of a building, without providing any structural or thermal analyses for storage inside of a building.

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## Discussion

The NRC discussed the relationship between the regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) 72.212, "Conditions of General License Issued Under § 72.210," and 10 CFR 72.48, "Changes, Tests, and Experiments." The NRC expressed a concern that if a general licensee were going to use the MSO, then it would find that there are no analyses in the SAR about storage inside of a building. This would require the licensee to evaluate the building using the requirements in 10 CFR 72.48. The NRC is concerned that the licensee may find that it trips the criteria in 10 CFR 72.48(c)(2)(v) in that the building may "create a possibility for an accident of a different type than any previously evaluated in the FSAR (as updated)," thus requiring an amendment (or revision) to the certificate in order to store the MSO inside of a building, as required by the proposed Technical Specification 4.3j.

NAC was unconcerned that potentially an amendment or revision to the certificate would be needed if a licensee were to store the MSO in a building. The NRC stated that it wanted NAC to be aware of the situation. The meeting discussing then turned to a technical discussion of the structural and thermal evaluations for storage of the MSO in a building.

The NRC staff stated that the requirements in 10 CFR 72.236(l) require an evaluation of the spent fuel storage cask and the building (i.e., its systems important to safety), if the building is considered important to safety, to demonstrate that the storage cask will maintain confinement of radioactive material under normal, off-normal, and credible accident conditions. NAC was concerned that they would have to design a building and provide a structural evaluation of that building to obtain approval of the amendment. NAC asked whether NRC was requiring a building design and evaluation of that building for approval of the amendment or would design criteria and a description of the evaluations to be performed on the building be sufficient to respond to the NRC concerns. The NRC stated it didn't believe that NAC had to design the building but could provide sufficient information to show that the building's structural impact, if any, on the storage cask had been evaluated.

The NRC discussed the building's impact on the thermal evaluation for the storage cask. The NRC stated that there are some building impacts on the storage cask design that are not captured by the existing design-basis analysis for the new MSO and contents when sitting outside on a pad. The NRC pointed out radiative heat transfer as an example. The NRC stated that it was unclear whether the reduced radiative heat transfer from the storage cask is offset by there being no insolation directly on the cask. In the application's analysis, a storage cask radiates heat to both the environment and casks surrounding it, but inside a building, the radiative heat transfer directed towards the environment would be direct toward building walls.

NAC stated that the radiative heat transfer is a small part of the total heat transferred from the fuel inside the TSC to the environment. NAC further stated that if both radiation heat transfer and solar insolation on the cask were neglected, its thermal calculations would show that the maximum temperatures of the storage cask and spent fuel would be below all temperature limits. NAC said that the building would not impact the thermal performance of the storage cask and that it could demonstrate it to the NRC.

The NRC asked NAC about the justification for the material loss due to radiation exposure in NAC's supplement dated April 20, 2021. NAC said that it had a technical basis and would send it to NRC in response to an RAI. Since the justification is proprietary, it was not discussed in the meeting. NAC also said that the total neutron and gamma fluence on the cask is greater than the fluence the cask would experience during its life in storage.

The NRC stated that it would review its draft RAI to determine whether any question should be revised based on discussions at this meeting. NRC stated that it is scheduled to issue the RAI by the end of the second week in July 2021.

Docket No. 72-1031

EPID No. L-2019-LLA-0273

Enclosure:

Meeting Attendees

SUBJECT: SUMMARY OF JUNE 30, 2021, MEETING WITH NAC INTERNATIONAL TO DISCUSS AMENDMENT NO. 10 TO THE MAGNASTOR® STORAGE SYSTEM  
DOCUMENT DATE: November 3, 2021.

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NRC Meeting Attendees

D. Marcano, NMSS

**ADAMS** Accession No.ML21298A202

<b>OFFICE</b>	NMSS/DFM	NMSS/DFM	NMSS/DFM
<b>NAME</b>	BWhite	WWheatley	JMcKirgan
<b>DATE</b>	11/03/21	10/27/21	11/03/21

MEETING ATTENDEES

Meeting Title: SUMMARY OF JUNE 30, 2021, MEETING WITH NAC INTERNATIONAL TO DISCUSS MAGNASTOR AMENDMENT 10

Participants: NAC International and the NRC

Date: June 30, 2021

Location: Teleconference

<b>NAME</b>	<b>AFFILIATION</b>
Bernie White	U.S Nuclear Regulatory Commission (NRC)/ Office of Nuclear Material Safety and Safeguards (NMSS)/ Division of Fuel Management (DFM)
John McKirgan	NRC/NMSS/DFM
Eli Goldfeiz	NRC/NMSS/DFM
Paul Peduzzi	NRC/NMSS/DFM
Marlone Davis	NRC/NMSS/DFM
Patrick Koch	NRC/NMSS/DFM
Tom Boyce	NRC/NMSS/DFM
Dave Tarantino	NRC/NMSS/DFM
Jorge Solis	NRC/NMSS/DFM
Heath Baldner	NAC International
Holger Pfeiffer	NAC International
Wren Fowler	NAC International
Mike Yaksch	NAC International
George Carver	NAC International
Carlyn Green	Ux Consulting

Summary of June 30, 2021, Meeting with NAC on MAGNASTOR Amendment 10 DATE November 3, 2021

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**ADAMS Accession No.: Memo ML21298A202**

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NAME	BWhite <i>BW</i>	WWheatley <i>WW</i>	JMcKirgan <i>JM</i>	BWhite <i>BW</i>
DATE	Nov 3, 2021	Oct 27, 2021	Nov 3, 2021	Nov 3, 2021

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