

January 24, 2022

U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Attn: Document Control Desk

Subject: Submission of an Amendment Request for the NAC International MAGNASTOR® Cask System Amendment No. 12

Docket No. 72-1031

- References:
1. U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CoC) No. 1031 for the NAC International MAGNASTOR Cask System, Amendment No. 9, December 7, 2020
 2. MAGNASTOR Cask System Final Safety Analysis Report (FSAR), Revision 12, NAC International, September 2021

NAC International (NAC) hereby submits a request to amend the description section in Reference 1 and Technical Specification (TS) Appendix A, Section 4.2, Paragraph 3. In Reference 1, this paragraph applies American Concrete Institute Specifications ACI-349 and ACI-318 to the CONCRETE CASK, which is a defined term in the TSs. The definition for CONCRETE CASK does not delineate any subcomponents that make up the “vertical storage module” CONCRETE CASK. Specifically, the concrete cask lid.

This subcomponent is a thick concrete and carbon steel closure for the concrete cask. The licensing basis design function for the lid is to reduce skyshine radiation and to protect the transportable storage canister (TSC) from the environment and postulated tornado missiles, as described in Reference 2, Section 1.3.1.3. However, there are no licensing basis structural requirements for the concrete in the lid, whether there is any embedded rebar or not. The tornado missile impact and lift evaluation do not take credit for the concrete. Thus, the only relevant licensing basis design requirement for the lid is for radiation shielding, which is evaluated in Reference 2, Section 5.1.2.

Currently in Reference 2, Chapter 1, Table 1.3-4, are the relevant concrete cask lid concrete specification requirements relevant to ACI-318, which include those requirements needed for adequate radiation shielding as discussed in Reference 2. Via this amendment, NAC is requesting the TSs be revised to provide a reference directly to this table for the construction of the concrete cask lid. Enclosure 1 of this letter provides the proposed changes to the TS in tracked changes format. Currently, NAC has two amendment applications before the NRC known as Amd. 10 and 11 that are likely to be processed through rulemaking together. NAC is requesting a speedy review of this Amd. 12 submittal such that it can be processed through rulemaking together with Amds. 10 and 11. If during the review that appears to not be likely, NAC would like to have a teleconference to discuss possible scenarios of processing these three amendments through rulemaking.

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If you have any comments or questions, please contact me on my direct line at 678-328-1236.

Sincerely,

Wren Fowler Digitally signed by Wren
Fowler
Date: 2022.01.24 13:24:50
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Wren Fowler
Director, Licensing
Engineering

Enclosure:
Enclosure 1 – Proposed Technical Specification Changes

Enclosure 1

Proposed Technical Specification Changes

MAGNASTOR[®], Amendment 12

(Docket No 72-1031)

NAC International

January 2022

MAGNASTOR Certificate of Compliance, Amendment 9

Description, 4th Paragraph

The concrete cask is the storage overpack for the TSC and provides structural support, shielding, protection from environmental conditions, and natural convection cooling of the TSC during long-term storage. The concrete cask **body** is a reinforced concrete (Type II Portland cement) structure with a carbon steel inner liner. The liner inner diameter incorporates standoffs to minimize impact loads on the TSC and to maintain convective heat flow paths under accident conditions. The concrete cask has an annular air passage to allow a passive convection air flow around the TSC. The air inlets and outlets are offset in elevation from the TSC to minimize radiation streaming. The spent fuel decay heat is transferred from the fuel assemblies to the TSC shell using pressurized helium circulated by convection through the fuel basket, conduction and radiation. Heat flows by convection from the TSC shell to the circulating air and by radiation from the TSC shell to the concrete cask liner. The heated air is exhausted, by convective flow, through the concrete cask air outlets. The top of the concrete cask is closed by a carbon steel **lid with concrete shielding** and ~~is concrete lid~~ bolted in place.

Technical Specification (TS) Appendix A, Section 4.2

4.2 Codes and Standards

The American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), 2001 Edition with Addenda through 2003, Section III, Subsection NB, is the governing Code for the design, material procurement, fabrication, and testing of the TSC.

The ASME Code, 2001 Edition with Addenda through 2003, Section III, Subsection NG, is the governing Code for the design, material procurement, fabrication and testing of the spent fuel baskets.

The American Concrete Institute Specifications ACI-349 and ACI-318 govern the CONCRETE CASK design and construction, respectively, **with the following exception:**

- **For concrete cask lids that do not credit the embedded concrete in any licensing basis structural evaluation, the applicable ACI-318 requirements to be met are specified in FSAR, Chapter 1, Table 1.3-4. For cask concrete other than that in the concrete cask lid, FSAR, Chapter 1, Table 1.3-3 applies.**

The American National Standards Institute ANSI N14.6 (1993) and NUREG-0612 govern the TRANSFER CASK design, operation, fabrication, testing, inspection, and maintenance.