



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

January 6, 2016

Mr. Wren Fowler  
Director, Licensing  
NAC International  
3930 East Jones Bridge Road,  
Suite 200  
Norcross, GA 30092

SUBJECT: AMENDMENT REQUEST NO. 6 TO CERTIFICATE OF COMPLIANCE NO.  
1031 – REQUEST FOR ADDITIONAL INFORMATION NO. 1 (TAC No. L25045)

Dear Mr. Fowler:

By application dated August 7, 2015, NAC International (NAC) submitted an amendment request to the U.S. Nuclear Regulatory Commission (NRC) to revise Certificate of Compliance (CoC) No. 1031 for the MAGNASTOR Storage System. Per NAC request, this amendment request will be processed as Amendment No. 7.

The NRC staff has reviewed your application and has determined that a request for additional information (RAI) is required to complete its detailed technical review. The RAIs are provided in the enclosure to this letter. We request that you provide the information by January 31, 2016. Please inform us in writing at your earliest convenience, but no later than January 17, 2016, if you are not able to provide the information by the requested date. You should also include a new proposed submittal date and the reasons for the delay to assist us in re-scheduling your review.

Please reference Docket No. 72-1031 and TAC No. L25045 in any future correspondence related to this certification action. If you have any questions regarding this matter, please contact me at (301) 415-6933.

Sincerely,

/RA/

John M. Goshen, P.E., Project Manager  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 72-1031

TAC No. L25045

Enclosure: As stated

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OFC	DSFM	DSFM	DSFM	DSFM	DSFM	DSFM
NAME	JGoshen	DWalker	JPiotter	SEverard		
DATE	12/23/2015	12/23/15	12/22/2015	12/28/2015		
OFC	DSFM	DSFM	DSFM	DSFM	DSFM	DSFM
NAME	ACsontos	CAraguas	SRuffin			
DATE	1/ 6 /16	1/ 5 /16	1/ 6 /16			

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**REQUEST FOR ADDITIONAL INFORMATION  
NAC INTERNATIONAL  
DOCKET NO. 72-1031  
AMENDMENT NO. 7  
MAGNASTOR STORAGE SYSTEM**

By application dated August 7, 2015, NAC International submitted an amendment request to the U.S. Nuclear Regulatory Commission (NRC) to revise Certificate of Compliance (CoC) No. 1031 for the MAGNASTOR Storage System. The NRC staff reviewed the application in accordance with NUREG-1536, Revision, "Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility." The NRC staff (staff) has reviewed your application and has determined that a request for additional information (RAI) is required to complete its detailed technical review. The RAIs are provided below. The staff has also provided observations. Observations include questions which do not rise to the level of a RAI that need to be resolved before but may require staff to issue a RAI during the technical review.

REQUESTS FOR ADDITIONAL INFORMATION

**Chapter 3 Structural Evaluation**

**RAI 3-1**

1. Clarify the meaning of Technical Specification (TS) 4.3.1(i).

The staff is unclear on the meaning of TS 4.3.1(i) and has the following specific questions:

- a. Can the MAGNASTOR cask be used in a seismic environment that exceeds the maximum design basis earthquake (DBE) acceleration of 0.37g in the horizontal direction (without cask sliding) and 0.25g in the vertical direction at the ISFSI pad top surface?
- b. If the MAGNASTOR cask can be used in a seismic environment that exceeds the DBE stated in TS 4.3.1(i), what is the purpose of the analysis that established the maximum DBE values that preclude tip-over without cask sliding?
- c. What is the purpose of a bollard system if one is used? Is it intended to only inhibit sliding due to seismic activity, or can it be used to inhibit tip-over as well?

This information is needed to determine compliance with 10 CFR 72.236(b).

**Chapter 4 Thermal Evaluation**

**RAI 4-1**

Demonstrate that the 3 dimensional ANSYS model used to evaluate the drying phase of the Passive MAGNASTOR Transfer Cask (PMTc) is numerically consistent with previous models of the MTC presented to evaluate the drying phase.

In reviewing past submittals on the MAGNASTOR storage system for background and completeness, the staff noted that the component temperatures of the fuel and the basket were significantly lower than the same component temperatures for the new PMTC. Based on the safety analysis report (SAR) text provided to the staff, it is not evident within the modeling

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approach why there should be such a large delta in those temperatures given that the only design change from the MAGNASTOR Transfer Cask is the neutron shield material.

Specifically, the NRC staff refers the applicant to Table 4.4-9, for the 30 kW case which reports component temperatures for the fuel and basket as 643° F and 614° F (637° F and 608° F in Rev. 0) respectively, and the 30 kW case presented in the unlabeled table at the bottom of pp. 4.10.2-1.

The staff noted that the reported ambient temperature for the PMTC is 104°F and the cooling water inlet temperature is 125°F. A comparison table showing the critical analysis parameters for the MTC and the PMTC along with a narrative explaining the differences in the modeling approaches would be helpful in making the safety determination.

This information is necessary to determine compliance with 10 CFR 72.122 h (1).

#### **RAI 4.2**

Provide a comparison of the modeling approaches used for each of the transfer phases for Both the MTC and PMTC as well as a summary table showing critical component temperatures following each phase.

SAR Chapter 4.10 summarizes the analytical approach including the models used by the applicant to verify the thermal effectiveness, however, the staff is unclear whether there are any significant deviations in the analytical approach which might alter the conclusions drawn in the confirmatory calculations performed by the NRC staff for the MTC.

This information is necessary to determine compliance with 10 CFR 72.122 h (1).

#### **RAI 4.3**

Justify the characterization of the 30 kW heat load being a bounding case during the helium cooling phase.

The NRC staff is unclear what criteria that the applicant is using to define the 30 kW heat load as the bounding case for the helium cooling phase. For example, is it a bounding case based on maximum fuel temperature after 24 hours or is it a bounding case because of the time duration for subsequent activities.

This information is necessary to determine compliance with 10 CFR 72.122 h (1).

#### **RAI 4.4**

Verify the modeling approach used for evaluation of the transfer condition (moving the Transportable Storage Canister into the Concrete Cask) presented in SAR section 4.10.2.4.

SAR Section 4.10.2.4 describes the numerical model as a 'three dimensional ANSYS model described in SAR Section 4.10.1.1', however, SAR Section 4.10.1.1 is a discussion on a 2D axisymmetric FLUENT model used to perform steady state analysis for the transfer condition.

This information is necessary to determine compliance with 10 CFR 72.122 h (1).

#### **Observations**

- O-1** Provide table numbers for all unlabeled tables in section 4.10.
- O-2** Verify values reported in unlabeled table on pp. 4.10.2-2