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

August 18, 2017

Ms. Kimberly Manzione
Licensing Manager, Holtec International
Holtec Technology Campus
1 Holtec Blvd.
Camden, NJ 08104

SUBJECT: ACCEPTANCE REVIEW OF REQUEST FOR AMENDMENT NO. 5 TO CERTIFICATE OF COMPLIANCE NO. 1032 FOR THE HI-STORM FLOOD/WIND CASK SYSTEM – REQUEST FOR SUPPLEMENTAL INFORMATION

Dear Ms. Manzione:

By letter dated January 6, 2017, as supplemented May 12, 2017, Holtec International (Holtec) submitted an amendment request to the U.S. Nuclear Regulatory Commission (NRC) to revise Certificate of Compliance (CoC) No. 1032 for the HI-STORM Flood/Wind (FW) Multipurpose Canister Storage System.

The staff has performed an acceptance review of your application. The staff has determined that the amendment application does not provide sufficient technical information to begin a detailed review and that supplemental information is needed. The information needed to continue our review is described in the enclosed request for supplemental information (RSI).

In order to schedule our technical review, responses to the enclosed RSIs should be provided by September 18, 2017. If the information described is not received by this date, the application may not be accepted for review. If you are unable to meet this date, please notify us at least one week in advance, of your new submittal date and the reasons for the delay.

Please reference Docket No. 72-1032 and CAC No. L25182 in future correspondence related to this licensing action. If you have any questions, please contact me at (301) 415-5790.

Sincerely,

/RA/

John Vera, Project Manager
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No.: 72-1032
CAC No.: L25182

Enclosure: RSI

SUBJECT: ACCEPTANCE REVIEW OF REQUEST FOR AMENDMENT NO. 5 TO CERTIFICATE OF COMPLIANCE NO. 1032 FOR THE HI-STORM FLOOD/WIND CASK SYSTEM – REQUEST FOR SUPPLEMENTAL INFORMATION, DOCUMENT DATE: August 18, 2017

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DATE:	7/31/2017	7/31/2017	8/1/2017	8/1/2017
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DATE:		8/17/2017	8/3/2017	8/18 /2017

Request for Supplemental Information

Docket No. 72-1032
Certificate of Compliance No. 1032
Amendment No. 5 to the HI-STORM Flood/Wind (FW) Multipurpose Canister Storage System

By letter dated January 6, 2017, Holtec International (Holtec) submitted an amendment request to the U.S. Nuclear Regulatory Commission (NRC) to revise Certificate of Compliance (CoC) No. 1032 for the HI-STORM FW Multipurpose Canister Storage System.

The staff has performed an acceptance review of your application to determine if the application contained sufficient technical information to begin a detailed technical review. The staff has determined that the amendment application does not provide sufficient technical information to begin a detailed review and that supplemental information is needed. The information needed to continue our review is described in the enclosed request for supplemental information (RSI). The staff's RSI's are provided below:

Chapter 4 – Thermal Evaluation

4-1 Incorporate the supporting thermal analysis and results for the new proposed heat loading patterns into the safety analysis report.

The application includes addition of new heat load patterns for MPC-37 and MPC-89 but Chapter 4 (Thermal Evaluation) does not provide the supporting thermal analysis and results for the new proposed heat load patterns. Section 4.5.4.1 of NUREG-1536 states that any model used in the thermal evaluation should be clearly described. The staff needs this information to establish the licensing basis and determine the adequacy of the thermal analysis and results to ensure applicable thermal limits are not exceeded.

This information is necessary to verify the requirements of 10 CFR 72.11 and 72.236.

Chapter 5 – Shielding Evaluation

5-1 Provide information to allow the staff to verify that the source term chosen to represent the decay heat is bounding for all possible fuel and fuel loadings or provide loading limits in terms of maximum assembly burnup, minimum enrichment and minimum cooling time for the new decay heat patterns.

The proposed technical specifications for the HI-STORM FW Amendment No. 5 contain new decay heat loading patterns. The applicant uses these decay heat patterns to evaluate the radiation source term for external dose rate evaluations. Decay heat alone does not adequately characterize the spent fuel specifications as there is an infinite number of burnup, enrichment and cooling time combinations that would produce the same decay heat, but different radiation source terms. Also, the same combination of these parameters does not necessarily result in bounding dose rates or doses for all conditions and all relevant locations around the cask system (e.g., at the cask surface), whether for the transfer cask or the storage overpack.

Section 6.5.2 “Radiation Source Definition” of NUREG-1536 states: *“The reviewer should examine the description of the design-basis fuel in Chapter 2, “Principal Design Criteria” of the SAR to verify that the applicant calculated the bounding source term. The review confirms that the applicant examined all fuel designs and burnup conditions for which the cask system is to be certified, to ensure that the bounding fuel type and values are used.”* Section 6.5.2.1, “Initial Enrichment” of NUREG-1536 states: *“However, the staff should not attempt to use specific source terms as bases for establishing operating controls and limits for cask use because these are not readily inspectable parameters. The fuel assembly initial enrichment, burnup, and cooling time are more appropriate for use as loading controls and limits.”*

This information is needed for the staff to evaluate the capability of the cask system to meet dose limits in 10 CFR 72.104 and 106 and to evaluate compliance with 10 CFR 72.236(d). The evaluated dose rates are also used to inform the estimated doses to workers in the radiation protection section (Chapter 11) of the SAR.

Chapter 11 – Radiation Protection

11-1 Provide the estimated doses to workers and the public from the new decay heat loading patterns.

The tables in Section 5.4 of the SAR contain dose rate values from the HI-TRAC VW and HI-STORM FW overpack calculated using the regionalized loading pattern. The estimates to the doses received to personnel for loading, surveillance and maintenance within Chapter 11, “Radiation Protection” need to be updated to reflect the estimated doses to workers as well as that to real individuals at or beyond the controlled area for the new decay heat loading patterns.

Section 11.5.2, “Occupational Exposures,” of NUREG-1536 states: “The reviewer should verify that the applicant presents the rationale used to justify the bases for various exposure times, personnel locations relative to the casks (including hot spots), number of personnel required, and appropriate gamma and neutron dose rates. In addition, the reviewer should verify that the calculated doses are consistent with these estimates.” Section 11.5.3, “Exposures at or Beyond the Controlled Area Boundary” states: “As required by 10 CFR 72.236(d), the application must demonstrate that the shielding and confinement features of the cask are sufficient to meet the requirements for real individuals in 10 CFR 72.104, and for DBA conditions in 10 CFR 72.106.”

This information is needed for the staff to evaluate the capability of the cask system to control and limit occupational exposures within the limits in 10 CFR Part 20 and to meet the objective of maintaining exposures ALARA and to evaluate the capability of the cask system to meet dose limits in 10 CFR 71.104 and 106 and to evaluate compliance with 10 CFR 72.236(d).

OBSERVATIONS

O-1 The staff notes that the amendment request proposes to add an exception to the ASME Code to allow the use of certain duplex stainless steels in the HI-STORM FW system. This same request was made for the HI-STORM 100 on Amendment No. 12, which is currently still under review. Staff expects that additional information would be required for this review, similar to that resulting from the HI-STORM 100 Amendment No. 12 review. The applicant should consider incorporating any additional information requested from that review into the submittal of responses to this request for supplemental information.

O-2 Staff notes that the information provided for the criticality evaluation for two new fuel types relies on a methodology which is still under review for the HI-STORM FW Amendment No. 4. The applicant should consider incorporating any additional information requested from that review into the submittal of responses to this request for supplemental information.