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

May 19, 2020

Christopher O'Mullane
Licensing Engineer
Holtec International
Holtec Technology Campus
1 Holtec Blvd.
Camden, NJ 08104

SUBJECT: APPLICATION FOR THE MODEL NO. HI-STORM FW STORAGE SYSTEM, AMENDMENT NO. 6 – SUPPLEMENTAL INFORMATION NEEDED

Dear Mr. O'Mullane:

By letter dated October 2, 2019 (Agencywide Documents Access and Management System [ADAMS] Package Accession No. ML19282C357), Holtec International (the applicant) requested to amend Certificate of Compliance No. 1032, Model No. HI-STORM FW Storage System. The U.S. Nuclear Regulatory Commission (NRC) staff performed an acceptance review of your application to determine whether the application contains sufficient technical information in scope and depth to allow the NRC staff to complete a detailed technical review.

This letter is to advise you that, based on our acceptance review, the application does not contain sufficient technical information. The information needed to continue our review is described in the enclosure to this letter as a request for supplemental information. In order to start our technical review, this information should be provided within 3 weeks from the date of this letter. If the NRC receives your response in a timely manner, you should expect to receive a request for additional information in July 2020.

If you wish to discuss these issues in more detail prior to submitting your response, the staff is available for a public meeting. Please reference Docket No. 72-1032 and EPID L-2019-LLA-0231 in future correspondence related to this action.

If you have any questions regarding these matters, please contact me at 301-415-6999 or ngs@nrc.gov.

Sincerely,

Norma Garcia Santos

Digitally signed by Norma Garcia Santos
Date: 2020.05.19 15:18:24 -04'00'

Norma García Santos, Project Manager
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 72-1032
EPID L-2019-LLA-0231
Enclosure:
Request for Supplemental Information

SUBJECT: APPLICATION FOR THE MODEL NO. HI-STORM FW STORAGE SYSTEM, AMENDMENT NO. 6 – SUPPLEMENTAL INFORMATION NEEDED

DOCUMENT DATE: May 19, 2020

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ADAMS Accession No.: ML20140A191

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Request for Supplemental Information
Holtec International
Certificate of Compliance No. 1032
Docket No. 72-1032
Model No. HI-STORM FW Storage System
Amendment No. 6

Shielding Evaluation

RSI-Sh-1 Provide the following:

a) the analyses for the transfer cask and overpack that demonstrates that the cask meets the criteria in Title 10 of the *Code of Federal Regulations* (10 CFR) Sections 72.236(b) through (f) in the event of a cask drop due to failure of the handling equipment. This information should ensure that this equipment maintains its safety function during credible accidents when the single failure proof criterion is not satisfied.

b) a revised application including a demonstration that the regulations in 10 CFR 72.236 are met considering the drop analysis when the handling equipment does not meet the single failure proof criterion.

i. a demonstration that the spent fuel storage cask is still subcritical considering any reconfiguration resulting from the drop analysis;

ii. a demonstration that radiation and confinement features are sufficient to meet the accident dose limits in 10 CFR 72.106; and

iii. a demonstration that the storage cask is still capable of providing adequate heat removal capacity.

The applicant proposes to modify technical specification 5.2(c) in Appendix A to the certificate of compliance (CoC) to allow the use of handling equipment that does not meet the single failure proof criterion during loading operations of the HISTORM FW Storage System, as long as a site-specific drop analysis is performed as part of the 10 CFR 72.212 report. Section 3.5.1.2, "Structural Design Criteria and Design Features," of NUREG-1536, "Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility," Revision 1, states the following about the design of a cask system and handling operations:

> The cask's radiation shield "must not degrade under normal or off-normal conditions or events….Any permissible degradation in shielding must be shown to result in dose rates sufficiently low to permit recovery of the damaged cask including unloading, if necessary…"

Moreover, the regulations in 10 CFR 72.236 require the certificate holder and applicant for a CoC to demonstrate compliance. Therefore, the staff does not find that requiring the general licensee to perform the site-specific drop analysis meets the regulations in 10 CFR 72.236(b) through (f), as these requirements need to be met by the CoC holder (i.e., the applicant).

This information is needed to determine compliance with the regulatory requirements in 10 CFR 72.236 (b) through (f).

Structural Evaluation

RSI-St-1 Provide a design evaluation to demonstrate that the HI-STORM FW storage system meets the criteria in 10 CFR 72.236(l) for a design basis cask drop evaluation due to failure of lifting equipment that does not meet the criteria listed in technical specification 5.2(c)(1) through (3) in Appendix A to the CoC.

The applicant proposed to modify technical specification 5.2(c) in Appendix A of the CoC by adding technical specification 5.2(c)(4). to allow the use of existing lifting equipment that does not meet criteria (1) through (3) of technical specification 5.2(c). Technical specification 5.2(c)(3) includes the single failure proof criteria. Proposed technical specification 5.2(c)(4) specifies that the general licensee must perform a site-specific drop analysis as part of the 10 CFR 72.212 report. The staff notes that 10 CFR 72.236 requires the certificate holder to provide a design basis evaluation for structures, systems, and components (SSCs) important to safety to demonstrate structural adequacy under the design basis accident conditions, including a cask drop scenario.

The staff notes that Section 2.5.2.2, “External Conditions,” of NUREG-1536 states that the staff has generally considered that the cask drop should be evaluated as one of the accident conditions in the safety analysis report (SAR), which is part of the application. The staff notes that Section 3.5.1.4, “Structural Analysis,” of NUREG-1536 states that a cask drop is a high priority item for the staff’s structural review and that the applicant should analyze the accident condition or demonstrate that the scenario is not credible. The staff expects that the applicant provide an evaluation in the final SAR (FSAR) for a drop due to failure of lifting equipment that does not meet the criteria listed in technical specification 5.2(c)(1), (2), and (3) of Appendix A to the CoC.

This information is needed to determine compliance with the regulatory requirements in 10 CFR 72.236(l).

RSI-St-2 Provide a design evaluation to demonstrate that the anchored variant of the HI-STORM FW Storage System, including the anchorage and attachment points, meets the requirements of 10 CFR 72.236(l) in the case of a tornado missile impact and tornado wind event.

The applicant notes in proposed Revision 7 of the FSAR for the HI-STORM FW Storage System that a site-specific tornado missile analysis shall be performed to demonstrate that the HI-STORM FW Storage System, Version E, cask’s anchors and its attachment points comply with the Level D stress limits in the American Society of Mechanical Engineers (ASME) Section III, Subsection NF. Regulation 10 CFR 72.236 requires the certificate holder and applicant for a CoC to provide a design evaluation for SSCs important to safety to demonstrate that the SSCs are structurally adequate.

NUREG-1536, Sections 2.4.2.2, “External Conditions,” and 2.5.2, “Design Bases for SSCs Important to Safety,” mentions that the safety analysis report should evaluate natural phenomena events, including tornadoes, as part of design-basis accidents. Specifically, NUREG-1536, Revision 1, Section 2.5.2, states the following:

> “The NRC staff accepts design-basis tornado wind loading as defined by RG 1.76, “Design Basis Tornado and Tornado Missiles for Nuclear Power Plants” (Region 1) and RG 1.117, “Tornado Design Classification.” Design criteria should be established for the cask on the basis of these wind-loading and missile-impact definitions. The cask should not tip over, and the capability to perform the confinement safety function should not be impaired. The NRC staff considers that tornados and tornado missiles may occur without warning….”

The staff also notes that Section 3.5.1.4 of NUREG-1536 states that both tornado missiles and tornado winds are low priority review items for the staff’s structural review and that the applicant must address these accident conditions in the SAR (application). Similar to the structural evaluation performed for the seismic event, the staff expects that an evaluation be presented in the FSAR for a design basis tornado missile impact and tornado wind event.

This information is needed to determine compliance with the regulatory requirements in 10 CFR 72.236(l).