

October 7, 2011

Ms. Tammy Morin,
Licensing Manager
Holtec International
Holtec Center
555 Lincoln Drive West
Marlton, NJ 08053

SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION TO LICENSE
AMENDMENT REQUEST NO. 9 TO HOLTEC INTERNATIONAL HI-STORM 100
CERTIFICATE OF COMPLIANCE NO. 1014 (TAC NO. L24476)

Dear Ms. Morin:

By letter dated September 10, 2010, as supplemented October 1, 2010, and August 11, 2011, Holtec International submitted license amendment request No. 9 to the U.S. Nuclear Regulatory Commission (NRC) for the HI-STORM 100 Certificate of Compliance No. 1014. The NRC staff has reviewed your application and has determined that additional information is required to complete its detailed technical review. The request for additional information (RAI) is identified in the enclosure to this letter. We request that you provide the information by November 7, 2011. Please inform us in writing at your earliest convenience, but no later than November 1, 2011, 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. 72-1014 and TAC No. L24476 in future correspondence related to this licensing action. If you have any questions, please contact me at (301) 492-3325.

Sincerely,

/RA/

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

Docket No.: 72-1014
TAC No.: L24476

Enclosure: As stated

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ADAMS:

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OFC:	SFST	SFST	SFST	SFST	SFST	SFST
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NAME:	DPstrak		MWaters			
DATE:	10/6 /2011		10/ 7 /2011			

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HOLTEC INTERNATIONAL

DOCKET NO. 72-1014

LICENSE AMENDMENT REQUEST (LAR) NO. 9

TO THE HI-STORM 100 CASK STORAGE SYSTEM

SECOND REQUEST FOR ADDITIONAL INFORMATION

REQUESTS FOR ADDITIONAL INFORMATION

- 3-1 a) Revise Table 3.I.10 to include both moment and axial loads for demand and capacity. Provide a clear explanation or example showing how each quantity in the table is generated.
- 3-1 b) Revise Table 3.I.10 to include omitted load case 'Half Loaded ISFSI'.
- 3-1 c) Provide axial-moment interaction diagrams for all load cases for the top surface pad (TSP) and Support Foundation Pad (SFP). Plot and provide Finite Element Analysis (FEA) results on the interaction diagram.
- 3-1 d) Provide schematic for each load case showing where in the TSP and SFP the peak loadings occur for the FEA calculation revisions in response to RAI 1.
- 3-1 e) Provide schematics for each load case showing where in the TSP and SFP the peak loadings occur for the original calculations for LAR No. 9.

The revised results from the structural analysis of the TSP and the SFP are significantly different from the results presented in the original submittal for this amendment, including significant reductions in safety factors for two load cases. Coupled with the small factor of safety already present for the TSP with a single Vertical Ventilated Module (VVM) loaded, the staff does not have reasonable assurance of safety for the structural performance of the TSP and the SFP.

This information is required to evaluate compliance with 10 CFR 72.212(b)(2)(i)(B).

- 3-2 Figures 3.I.14-A, B, and 3.I.16-22 are missing from the Final Safety Analysis Report (FSAR) pages provided for review. Provide the proposed figures and verify that these will be included in the next biennial FSAR update.

This information is required to evaluate compliance with 10 CFR 72.212(b)(2)(i)(B).

- 3-3 In the August 11, 2011, submittal, the last sentence in the response to RAI 3-4 states:

Soil excavations below the elevation corresponding to the bottom surface of the existing SFP are not permitted within a distance from the RPS equal to ten times the planned excavation depth, regardless of whether a retaining wall is installed or not, unless a site-specific seismic analysis is performed demonstrating the stability of the RPS boundary and the structural integrity of the ISFSI structure."

ENCLOSURE

If this statement is included in the FSAR as a basis of consideration, then a license condition will be required to be added to the Certificate of Compliance (CoC) to state that "the site-specific seismic analysis performed to demonstrate the stability of the RPS boundary and structural integrity of the ISFSI structure shall be submitted to the NRC for review and approval prior to any excavation taking place."

This license condition is necessary because license approvals must be based on specific designs, and regulatory bases as bounded by the conditions of the CoC. The NRC can only approve a CoC and corresponding Technical Specifications (TS) based on specific system designs, not a concept or evaluation based on a future analysis. If an excavation adjacent to the RPS is to be approved where the integrity of the ISFSI structure and stability of the RPS boundary is based on a seismic analysis to quantify the structural demand, and subsequently to determine if the design is acceptable, then that analysis and demonstration of adequacy must be a part of the current CoC amendment application or else a future amendment request would be required. An applicant cannot be granted a CoC for a design condition that has not been evaluated.

Additionally, the staff refers you to the CoC 1014, Amendment No 7 Safety Evaluation Report which is provided below:

"The applicant revised the UFSAR and TS to require a site-specific seismic analysis for all construction and excavation activities adjacent to an existing array of VVMs. However, the applicant deferred the seismic analysis and accident evaluation to the general licensee's 10 CFR 72.212 evaluation. This is an incorrect utilization of the 10 CFR 72.212 evaluation as the evaluation is used to show that the site parameters are "enveloped by the cask design bases considered" in the certificate holder's FSAR referenced by the CoC.

Specifically, the TS states (See The applicant's January 16, 2009 response) that the "Radiation Protection Space (RPS)... is intended to ensure that substrate material... remains essentially intact under all service conditions including during an excavation activity adjacent to the RPS. A retaining wall at the edge of the RPS shall be constructed to prevent possible loss of shielding within the RPS during excavation under any credible event such as human error or an earthquake. If possible, the RPS retaining wall(s) shall be keyed to the reinforced concrete pads at the bottom and top of the VVM. The retaining walls shall be important-to-safety and shall be designed to comply with a national consensus standard (such as ACI [American Concrete Institute] 318 (2005))."

The addition of the retaining wall(s), as described in the TS, constitutes a modification to the design that can significantly alter the structural response of the system due to the application of the design loads. This is particularly true of the seismic response, where the addition of the retaining wall(s) will alter the relationship between an array's center of mass and its center of resistance, introducing additional rotational components to the response that have not been considered. Such a modified design has not been analyzed and evaluated by the applicant.

Additionally, no accident evaluation has been performed for construction and excavation activities taking place next to an array of loaded VVMs. The staff finds this unacceptable.

Therefore, to ensure the stability and integrity of the soil within the RPS, the staff requires that no excavation activities associated with the construction of new VVMs shall take place within a distance from the RPS equal to ten times the depth of the planned excavation. The staff has added appropriate language to the CoC and TS to capture this requirement.”

This information is required to evaluate compliance with 10 CFR 72.212(b)(2)(i)(B).