October 30, 2000

Mr. Brian Gutherman
Licensing Manager
Holtec International
555 Lincoln Drive West
Marlton, NJ 08053

SUBJECT: HI-STORM 100 ACCEPTANCE REVIEW (TAC NO. L23082)

Dear Mr. Gutherman:

On August 31, 2000, Holtec International (Holtec) submitted a revised application in accordance with 10 CFR Part 72 for an amendment to Certificate of Compliance No. 72-1014 for the HI-STORM 100 Cask System. The amendment request included proposed safety analysis report (SAR) changes. However, the changes were made to an outdated SAR version. On October 6, 2000, Holtec updated the amendment request to include proposed revisions to the most recent SAR version. In addition to correcting the SAR issue identified by the Nuclear Regulatory Commission (NRC), Holtec also made additional unrelated changes to the amendment request associated with the technical specifications for the spent fuel storage cask heat removal system.

This letter is to inform you that the NRC has determined that, in some areas of the application, information necessary to begin our review is lacking. The submittal lacks information necessary to justify the use of high burnup fuel, particularly the methodology used for calculating temperature limits using the 1% creep strain limit. Additionally, while performing the acceptance review, the staff has identified other information that will be necessary to complete the review. The NRC acceptance review has determined that the remaining areas of the amendment request appear complete and the NRC review can begin.

All the information needed by the NRC to conduct the review is identified in the enclosure. Please review the information and determine when Holtec will be able to provide the information completely and accurately. In accordance with the rules of engagement, the NRC will develop a schedule for the review of this amendment request after Holtec commits to a date to provide the information. The NRC will continue to review the remainder of the application.

We would like to note that making additional changes to the amendment request in the future, beyond providing the information requested, could result in significant delays in scheduling and

completing this review. Please reference docket number 72-1014 and TAC No. L23082 in future correspondence related to this action. You may contact me at 301-415-2947 if you have any questions regarding our review of the amendment request.

Sincerely,
/S/ /RA/
Christopher P. Jackson, Project Manager
Spent Fuel Licensing Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Docket No. 72-1014

Enclosure: As stated

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Attachment

INFORMATION NEEDED TO REVIEW HI-STORM AMENDMENT 1

1. A complete justification of the methodology used for calculating temperature limits using the 1% strain limit is not provided and is needed to approve use of high burnup fuel. Specifically, please provide the following information:

- A basis for the adequacy of the Spilker creep model beyond 60,000 MWd/MTU, an explanation of how clad strength and ductility are affected by burnup up to 68,200 MWd/MTU, and an explanation of how tertiary creep is accounted for in the Holtec model (beyond 10,000 hours).

- A basis for each of the values or terms in equation 5 of Appendix 4A, as well as the data (creep strain vs. time) used to bench mark the Holtec model.

- An explanation of how the permitted temperature excursions during vacuum drying are accounted for in the Holtec long-term creep model with regard to the potential for annealing (the 1% strain limit assumes unannealed irradiated zircaloy) and hydride reorientation. FSAR section 4.3.3 appears to only deal with short-term creep and rupture.

- An explanation for how gas pressure within the fuel pin was considered in the Holtec creep model for the high burnup fuel.

- A justification that oxide thickness levels in excess of the limits contained in A1 and A2, of ISG 11 Rev. 1, are not possible for any of the approved fuel (there are no administrative controls proposed in the technical specifications).

2. Proposed required action B.3.1 in Appendix A of the Certificate of Compliance (CoC) requires verification that alternate, plant-specific, heat removal methods be available. However, the proposed CoC does not require specific users to develop contingencies for alternate methods of heat removal for this design basis event. Please include provisions in the CoC that provides guidance for the users to develop alternate methods for heat removal and an appropriate emergency response for this design basis event. The Safety Analysis Report should provide a few examples of acceptable alternate cooling mechanisms.

3. Please provide the calculation packages for the structural, thermal, criticality, and shielding analyses. For the shielding analysis, please include sample input files for the new shorter HI-STORM overpack (HI-STORM 100S), and the 100 ton HI-TRAC loaded with design basis fuel and control components.

4. Please provide a validation of the new methodology used to derive the thermal responses of the MPC to normal, off-normal, and accident conditions (a bench marking report is referenced). Provide a detailed technical evaluation that quantifies the level of conservatism and uncertainty in the new thermal analytic methods (FSAR Section 4.4.6 does not quantify the conservatism or the uncertainty in the model).