

Holtec Response to Request for Additional Information (Second Round)

**Docket No. 72-1014
Certificate of Compliance No. 1014
Amendment No. 16 to HI-STORM 100
Multipurpose Canister Storage System**

Shielding Evaluation

RAI 5-5

Provide calculations demonstrating that the HI-STORM 100 storage system design meets regulatory annual dose limits for a real individual located beyond the controlled area in Title 10 of the Code of Federal Regulations (10 CFR) Section 72.104(a) with the proposed limits for burnup and enrichment in final safety analysis report (FSAR) tables 2.1.28 and 2.1.29.

As part of Proposed Change No. 7, the applicant proposed replacing the tables of correlation coefficients used to determine appropriate content limits for meeting regulatory dose rate requirements with a table of allowable burnup and cooling time for zirconium based cladding fuel within the ventilated overpacks for the following canisters: MPC-24/24E/24EF, MPC-32/32F and MPC-68/68FF. These new limits on allowable contents produce source terms that would result in higher dose rates than the source terms produced from previously approved correlations and correlation coefficients. The applicant did not provide calculated annual dose for a real individual located beyond the controlled area with the limiting source terms produced from the proposed content limits.

The NRC staff makes findings that regulations associated with cask design in 10 CFR 72.236 are met during design certification. Although there are technical specification dose rate limits on the storage cask surface that have not changed and would serve to limit dose, these are very limited in number, and do not provide enough information to justify that potential loadings allowed by FSAR tables 2.1.28 and 2.1.29 that also meet technical specification dose rate limits would subsequently meet the dose limits in 10 CFR 72.104(a) at the previously specified distances to the controlled area boundary for the HI-STORM 100.

These calculations are needed by the NRC staff to be able to make a finding per 10 CFR 72.236(d) that the system has appropriate shielding to meet annual dose limits in 10 CFR 72.104(a).

Holtec RAI Response:

The calculations are performed for HI-STORM 100S Version B loaded with the MPC-24, MPC-32 or MPC-68 canister with the limiting contents in Tables 2.1.28 and 2.1.29 of the FSAR, and the annual dose to an individual at or beyond the controlled area boundary as well as the minimum distance required to meet the dose limits in 10 CFR 72.104(a) are determined. The results of the calculations are added to Section 5.4.11 of the HI-STORM 100 FSAR.