

## REQUEST FOR ADDITIONAL INFORMATION

### HOLTEC INTERNATIONAL HI-STORM UMAX – AMENDMENT No. 3 MULTIPURPOSE CANISTER STORAGE SYSTEM CERTIFICATE OF COMPLIANCE No. 1040

By letter dated August 30, 2016 (Agencywide Documents Access Management System, (ADAMS) Accession Number, ML16250A393), Holtec International (Holtec) submitted to the U.S. Nuclear Regulatory Commission (NRC) an application for amendment to the certificate of compliance for the HI-STORM UMAX multipurpose canister storage system requesting to accommodate non-Holtec canisters (e.g., NUHOMS 24PT1-DSC). The calculation packages that support the amendment request were submitted under a separate letter dated September 9, 2016 (ML16258A213). By letter dated November 2, 2016 (ML16313A170), Holtec supplemented the amendment request. As a result of staff's formal request for supplemental information, letter dated January 23, 2017 (ML17023A058) and the public meeting held on June 7, 2017 (meeting summary, letter dated July 7, 2017, ML17188A274), Holtec again supplemented the application by letter dated, March 3, 2017 (ML17067A060), June 29, 2017 (ML17187A176), and August 4, 2017 (ML17229B196).

#### **Administrative**

Provide drawing 10017 for the current docket.

O-9 in the request for supplemental information (ML17023A060) suggested for Holtec to consider providing a standalone licensing drawing that incorporates UMAX drawing 10017. Holtec's response to observation O-9 (ML17067A062) indicated that drawing 10017 was submitted on the HI-STORE docket. Drawing 10017 is needed on the current docket as it is needed to understand how important to safety components will be designed (e.g., top seismic restraint, divider shell appurtenance (DSA), pedestal, upper MPC guides, and associated supports, etc.).

This information is needed to determine compliance with 10 CFR 72.146(a).

#### **Thermal Evaluation**

Provide a thermal model that demonstrates peak cladding temperature is accurately predicted for the 24PT1 DSC when stored in the HI-STORM UMAX system.

Section I.4.4.1 of the FSAR describes the canister thermal model used to analyze the 24PT1 dry-shielded canister (DSC) when stored in the HI-STORM UMAX system. However, the applicant's modeling approach and analysis results of the HI-STORM-UMAX thermal design's predicted peak cladding temperatures rely on a homogenized DSC model. Also the application does not contain information (for example, validation or benchmarking studies performed for similar designs) to demonstrate the homogenized canister modeling approach used in the application is sufficient and conservative in the calculation of the peak cladding temperatures. Accurate prediction of peak cladding temperature is necessary to demonstrate compliance with 10 CFR 72.236(b) which requires that design bases and design criteria must be provided for structures, systems, and components important to safety and 10 CFR 72.236(f) which requires that the spent fuel storage cask must be designed to provide adequate heat removal

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capacity without active cooling systems. In the amendment request, the applicant did not provide adequate design basis analyses which demonstrate the cask would provide adequate heat removal capacity without exceeding the peak clad temperature limit. Staff has previously accepted thermal analysis that relies on homogenized fuel assemblies when accompanied by appropriate justification (see Section 4.5.4.1.2 of NUREG-1536 and Section 2.2 of NUREG-2208 for additional guidance on acceptable thermal models).

This information is needed to determine compliance with 10 CFR 72.236(b) and 10 CFR 72.236(f).