

NRC RAI 8-1

Clarify the acceptance tests and criteria for determining the shielding is functional post-fabrication, modifying them as needed.

In Section 8.1.6 of the application, the applicant provides information on the acceptance tests performed post-fabrication to ensure that the package shielding is functional and fabricated consistent with the assumptions within the shielding evaluation in Chapter 5 of the application.

The staff does not have enough information to determine that the post-fabrication tests and acceptance criteria are adequate for determining that the package shielding was fabricated consistent with the assumptions in Chapter 5 of the application and the design drawings. Section 8.1.6 states the following: "An inspection using a calibrated radiation detector and a ⁶⁰Co source will be performed. Acceptance criteria will be defined by comparative measure on mock-up or reference blocks produced using the casting technique used for the as-built cask components and having calibrated defects."

The applicant needs to include additional information on the requirements of the inspection. The applicant needs to provide more specific acceptance criteria and clarify the above language as the staff does not understand what is meant by "reference blocks produced using the casting technique used for the as-built cask components and having calibrated defects." The acceptance criteria should have a clear connection between them and demonstrate that the as-fabricated package meets the minimum design specifications in the design drawings and the assumptions regarding the packaging in the shielding evaluation.

The applicant also needs to specify procedures for determining acceptance of the BFA- Tanks and cassettes as these components are used as shielding and considered important for safety.

This information is needed by the staff to determine compliance with 10 CFR 71.85(a).

Holtec's Response to RAI 8-1

The RAI has two sub-requests, one for information regarding the post-fabrication test in Section 8.1.6, and one about the BFA Tanks and BFA Tank Cassettes. These are addressed separately below.

Post-Fabrication Tests

We apologize for the confusion. While other transport casks utilize material where the shielding effectiveness depends highly on the installation or manufacturing details (e.g. lead), all materials relevant from a dose rate perspective in the HI-STAR ATB-1T is solid steel, and the dimensions are inspected and verified as part of the manufacturing process. There should be therefore no concern with respect to shielding effectiveness, and hence no such test requirements should have been stated in Section 8.1.6. We therefore propose to remove these requirements from that section.

BFA Tanks and BFA Tank Cassettes

For the BFA Tanks and BFA Tank Cassettes a request is submitted to exempt those components from being manufactured under Holtec's QA program with appropriate justification [Reference 8.1]. In essence, the justification is based on the extensive and rigorous inspections regime for those components, with many of them already manufactured, which gives reasonable assurance they meet the characteristics relevant for the safety analyses. Accordingly, Section 8.1.1 is proposed to be modified as follows:

8.1.1 Visual Inspections and Measurements

The HI-STAR ATB 1T Packaging (including waste packaging with important to safety function) shall be assembled in accordance with the drawing package referenced in the CoC. Dimensional tolerances that define the limits on the dimensions critical to the licensing basis analysis are included in these drawings. Fabrication drawings provide additional dimensional tolerances necessary to ensure fit-up of parts as well as compliance with the design conditions. A shop *traveller* including an inspection plan shall be prepared and controls shall be implemented to ensure that the packaging conforms to the dimensions and tolerances specified on the licensing drawings. These dimensions are subject to independent confirmation and documentation in accordance with the Holtec QA program approved in NRC Docket No. 71-0784.

For BFA Tanks and BFA Tank Cassettes an approach other than that outlined in the previous paragraph can be used if those components have not been fabricated under Holtec's QA program. In that case, verification that the characteristics of those components meet those specified on the licensing drawings can be based solely on the inspection documents from the manufacturing of those components.

The following shall be verified as part of visual inspections and measurements:

- Visual inspections and measurements shall be made to ensure that the packaging effectiveness is not significantly reduced. Any *important-to-safety* component found to be under the minimum thickness requirement shall be repaired or replaced as required.
- The packaging shall be visually inspected to ensure it is conspicuously and durably marked with the proper markings/labels in accordance with 10CFR71.85(c).
- The packaging shall be inspected for cleanliness and preparation for shipping in accordance with written and approved procedures.

The visual inspection and measurement results for the HI-STAR ATB 1T Packaging shall become part of the final quality documentation package.

Reference:

- [8.1] Exemption Request for HI-STAR ATB 1T Package Existing BFA-Tanks and BFA-Tanks Cassettes (BTCs)