

Clarification regarding Testing performed during the shielded container prototype testing (Drop tests, Gamma Scans, Destructive Disassembly) –

The details are provided in HPT-REP-0001 Rev 1, but the below summarizes the test sequences that were performed on each of the shielded containers and provides some clarification that may be helpful.

- After each shielded container was fabricated, a “Pre-test” gamma scan was performed on the lead lined units before drop testing took place.
- Each container was subjected to drop testing (4 ft Type A “bare” drops or 30 ft Type B “dunnage protected” drops).
- After drop testing, each of the lead lined shielded containers were subjected to a “post-test” gamma scan.
- After the “post-test” gamma scan certain test units were chosen for destructive disassembly.
 - Chosen via comparison of the pre and post drop test gamma scan results. Units (specific grid locations) were chosen based on the largest net change in shielding efficacy between pre and post drop test gamma scan results.

During the destructive disassembly the gaps in the lead annulus shown in HPT-REP-0001 were observed. The gaps were determined to be due to cold shuts forming as part of the lead pour process as detailed in HPT-REP-0001. This was easy to conclude pointing to Figure 7-34 and the fact that this gap matched the angle as it was placed on the vibrating table during the lead pour process (in other words, the gap was not present for the entire lead cavity around the circumference of the container. The gap was measured from 0.318 inch to 0.193 inch to 0 inches. It spanned from AY to Z (approximately halfway around the circumference) (see Section 7.1.3.2 on page 100 of HPT-REP-0001 for more detail).

We were obviously not happy to find the gaps, however they did explain the reason for the change in the shielding efficacy observed between the pre-test gamma scan and post-test gamma scan for this specific container (18TU-09). During the pre-test gamma scan there was no axial gap at the top of the container, but during the post-test gamma scan the axial gap shown in Figure 7-34 was at the top of the container. This accounted for the change in the shielding efficacy between the gamma scans.