

Improving future designs by learning from radioactive waste-management experiences

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As CERN operates its accelerator complex with a high-energy charged particle beam, the interaction of this beam with various systems designed to guide, shape, absorb and produce secondary particles, results in production of radioactive components and the activation of nearby equipment.

Consequently, the components need to be safely managed and handled once they are removed from the accelerator complex, either to store or safely and sustainably dispose them as waste. Host-state requirements dictate the specific packaging type, size, composition, and activity levels that these packages shall have.

Moreover, ALARA principles must be included in the design processes for new beam intercepting devices and target production areas, to reduce exposure of personnel to ionizing radiation and to optimally exploit these installations. The experience derives from both CERN internal expertise as well as from worldwide facilities and active collaboration.

This presentation will discuss the experiences gained in the design, implementation, operation, and waste packaging of highly activated radioactive equipment under the responsibility of the CERN STI/TCD. Additionally, it will explain how these lessons learned are being incorporated into the design of new beam intercepting devices components and target stations.

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