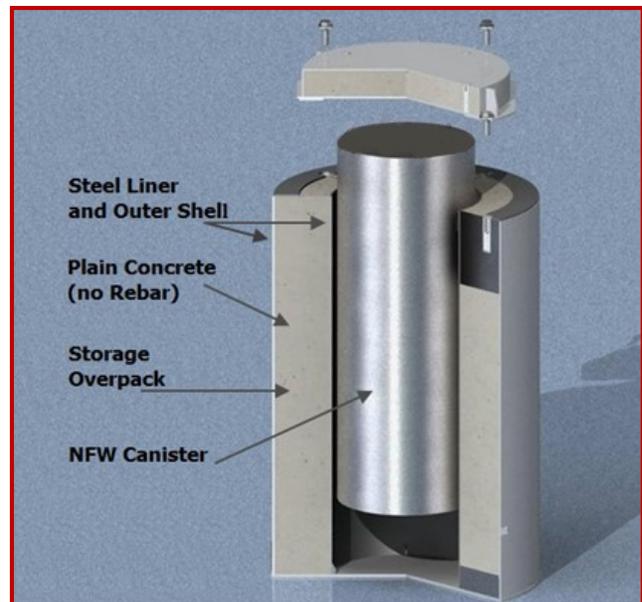


# HI-SAFE® Non-Fuel Waste Storage System



Holtec's HI-SAFE storage system provides an extremely safe and cost-effective solution for on-site storage of non-fuel waste generated from operation and decommissioning of commercial nuclear power plants. HI-SAFE is the non-fuel waste counterpart to Holtec's dry spent nuclear fuel storage system – HI-STORM. In all significant respects, each HI-SAFE Cask System emulates the HI-STORM Storage System. Like the HI-STORM, the HI-SAFE storage system consists of a vertical, freestanding steel weldment filled with shielding concrete overpack and an all-welded canister containing the waste stored inside. The all-welded Non-Fuel Waste Canister (NFWC) which mimics the external dimensions of Holtec's Multi-Purpose Canister (MPC), features a stainless-steel design for storage and transport of nearly all waste types, including activated reactor internals, control components, non-fissile materials, and operational waste, such as filters and resins. Like the MPC, stainless-steel closure welds ensure that the NFWC will remain leak-tight for the duration of its service life. In addition, HI-SAFE is capable of storing High Integrity Containers (HICs) that may already be in use at the site for storage of resin and filter wastes. These waste containers can be stored inside Holtec's HI-SAFE overpack, which provides efficient radiological shielding and robust structural protection of the contained radioactive materials. HI-SAFE is designed in accordance with regulatory and industry guidelines for non-fuel waste storage and is engineered to serve as a robust dose attenuator and an immensely rugged structure, which, like HI-STORM can maintain its integrity during severe accident events, natural disasters, and terrorist threats at any nuclear site in the United States or around the world.

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**Cut-away View of HI-SAFE with NFWC**

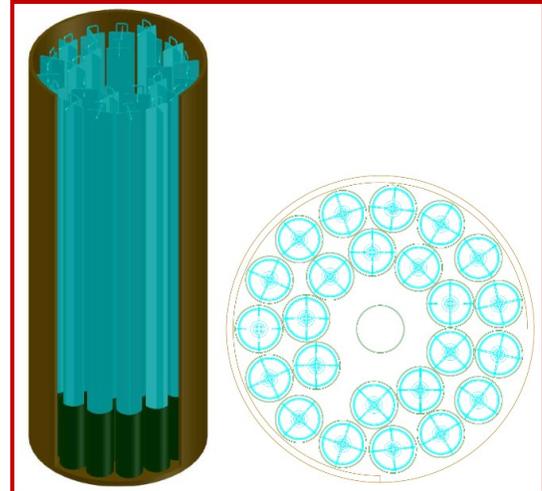
The HI-SAFE and HI-STORM systems are fully compatible, allowing current users to take advantage of existing ancillary equipment and infrastructure and new users to procure an integrated system for all spent fuel and non-fuel waste storage needs.

In storage, HI-SAFE can be placed either at an Independent Spent Fuel Storage Installation (ISFSI) alongside HI-STORMs or on separate storage pads designated for non-fuel waste<sup>1</sup>.

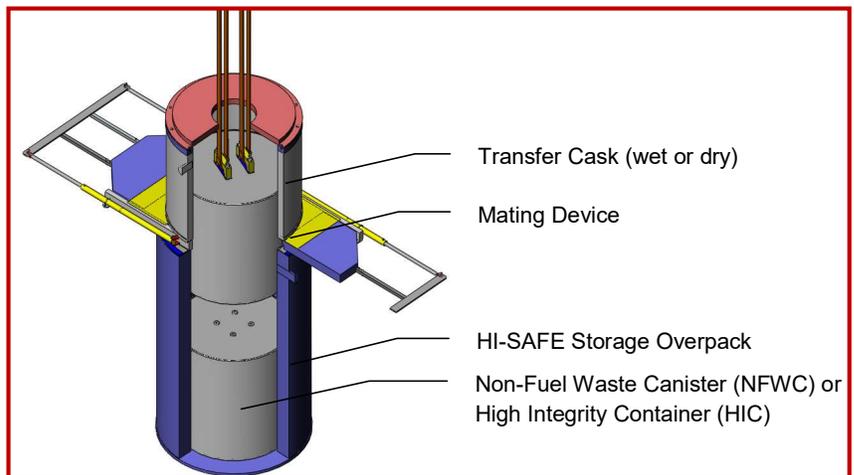
<sup>1</sup> In the U.S., a Part 50 licensee is authorized to possess and store nuclear waste on the reactor site under the provisions of 10CFR 61.55. This authority is granted to Part 50 licensees under the general license provisions of 10 CFR 30 (for byproduct material) and 10 CFR 70 (for special nuclear material) because they are both necessarily a part of reactor operation. GTCC waste can also be stored at an ISFSI under 10 CFR 72. Like any other reactor-related radioactive waste, the licensee is required to ensure the waste is stored in containers and/or locations (e.g., the spent fuel pool) such that the dose to personnel is ALARA. Regulations of the relevant competent authority apply internationally.

In summary:

- The HI-SAFE storage system provides robust, low-dose interim storage of non-fuel waste.
- The HI-SAFE storage system shielding can be adjusted (8-30 inches of concrete shielding) based on the type of waste being stored and the prevailing regulatory requirements.
- The Non-Fuel Waste Canister (NFWC) is designed for convenient and safe handling of any waste form and serves as an autonomous *waste package*.
- The NFWC can be loaded with various forms of HLW including cut, flattened, and/or full length Control Rod Blades.
- HI-SAFE can accommodate High Integrity Canisters (HICs) used for disposal of resin and filter waste that is either dewatered or solidified.
- The transfer cask (either HI-TRAC or a specially designed transfer cask for HICs) allows for seamless transfer of waste containers and minimizes radiation exposure to the crew. The transfer cask can be designed to support dry loading or loading in the spent fuel pool.
- Depending on the activity level of the waste, Holtec's HI-STAR dual-purpose (storage and transport) overpack can be used to transport the NFWC off-site.
- HI-SAFE is stored on-site at a Non-Fuel Waste Storage Facility (NSF), which consists of a concrete or gravel storage pad with appropriate security features (e.g., to comply with proposed 10 CFR 37 security requirements). GTCC waste can also be stored at an ISFSI.



**Conceptual Rendering of 24 Full Dimension CRBs Loaded into a NFWC**



**Cut-away View of HI-SAFE with HIC**