

Canister Fill and Decon Cell Systems for THOR

The Canister Fill and Decon Cell System is part of the Integrated Waste Treatment Unit (IWTU) at the Idaho National Laboratory (INL) site.

The IWTU will be used to process radioactive sodium-bearing tank waste (SBW) using a fluidized bed steam reformer treatment process to remove nitrates and organic materials from the SBW, produce a stable immobilized solid product, package the solid waste product in canisters, and store the waste canisters until they can be shipped to the Waste Isolation Pilot Plant (WIPP).

MCE was contracted to design, fabricate, conduct and report prototype tests, complete final design and validation/tests, fabricate three subsequent operational units, and support site-specific testing. Each system includes the following major components:

- Canister fill carts and turntable
- Canister conveyor and lift
- Canister vibrators
- Canister lidding/delidding, drive system, torque sensor, and pintle grapple
- Canister fill port
- Canister filling feed nozzle
- Fill nozzle plug feeder, fill level detection, interface, and seals
- Canister content removal vacuum and hood
- Process control system

The canister filling and decon cell system is a unique, remotely operated system that will be placed in hot cells at INL. This system uses a temporary plug that is installed remotely in the filled canister opening before moving the filled canister to a lidding station.



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