

Remote Handled Transuranic Waste (RH-TRU) Status for the INL Citizen's Advisory Board



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RH-TRU Waste Background

- What is RH-TRU?
 - Remote Handled Transuranic Waste – Waste that requires special handling and is contaminated with elements having atomic numbers greater than uranium (i.e. plutonium, americium, etc.).
- Why is it different than CH-TRU?
 - High radiation fields (>200mR/hr on contact).
 - Requires shielding and remote handling to limit personnel exposure.
 - Increased time and cost compared to CH-TRU.
- How is it handled?
 - Hot cells.
 - Manipulators, cranes, robotic arms.
 - Shielded Containers.



Open Container Showing Waste
(Hot Cell Windows Cause Orange Tint and Distortion)



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INL RH-TRU Characteristics

- Materials in INL RH-TRU Waste
 - Reactor components/activated metals (i.e. structural members from reactor core)
 - Fuel examination debris (i.e. mill shavings from cutting fuel)
 - Hot cell debris (i.e. materials/equipment used in hot cells)
- Characteristics of INL RH-TRU Waste
 - Waste from various generators (MFC, Argonne National Lab, TRA, etc.)
 - Waste in various storage configurations.
 - Very high radiation fields up to 6,000 R/hr.
 - Some contaminated with sodium.
 - May contain pyrophoric metal fines.



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Pyrophoric Metal Fines Fire



Waste Removal/Sorting



Current Contract RH-TRU Scope

- ARRA Funded RH-TRU
 - Approximately \$85M
 - Repackage 160 Containers (25.6 m³)
 - 136 Hot Fuel Exam Facility Canisters
 - 8 Sodium Loop Storage Facility Canisters
 - 13 24" (Large) Liners
 - 3 Miscellaneous Containers
- Other RH-TRU Work
 - Approximately \$30M
 - Repackage 68 Containers
 - Repackage 5 Vaults



Manipulator Repair Activities

In-Cell Waste Movement

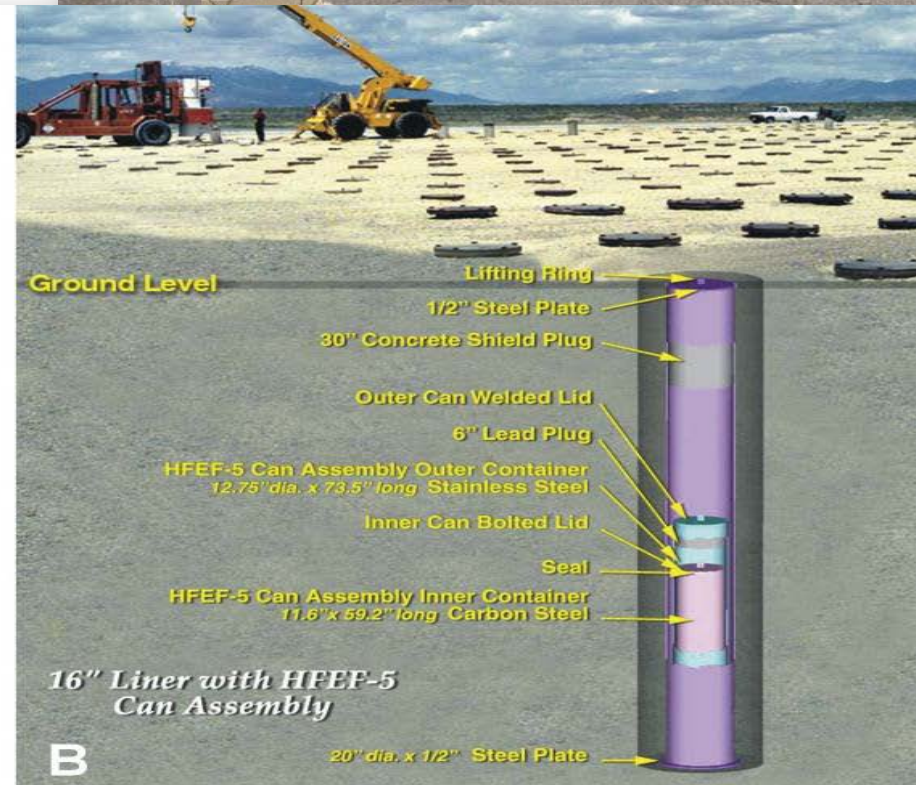
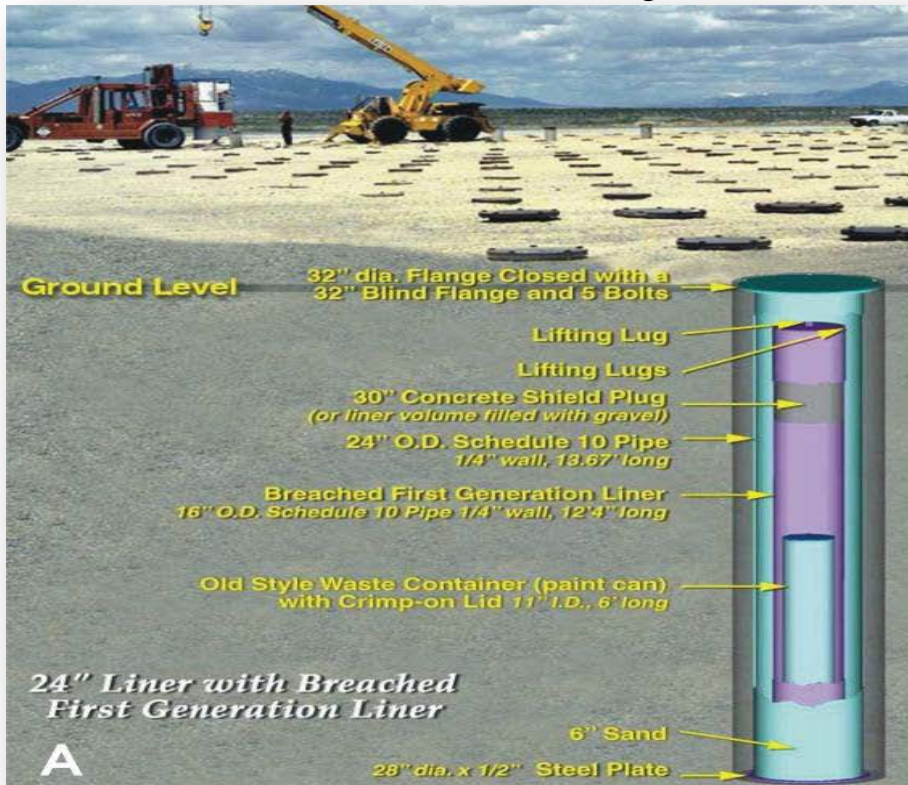


Waste Load-Out Activities

RH-TRU Process (Waste Retrieval)

- Storage
 - Waste stored in various configurations.
 - Mainly Stored underground at MFC.
- Retrieval
 - MFC waste retrieval performed by BEA
 - HFEF-5 Containers removed from storage container.
 - 24" Liners removed from the ground.

HFEF-5 Container Retrieval from Storage



RH-TRU Process (Transportation)

- Shipping Configurations
 - Interim Storage Containers used for smaller waste packages.
 - Facility Transfer Containers used for larger waste packages.
- Transportation
 - Non-licensed shipping containers.
 - Moved from MFC to INTEC on Highway 20.
 - Made out of commerce.



Truck Loaded with Facility Transfer Container



Truck Loaded with Interim Storage Container



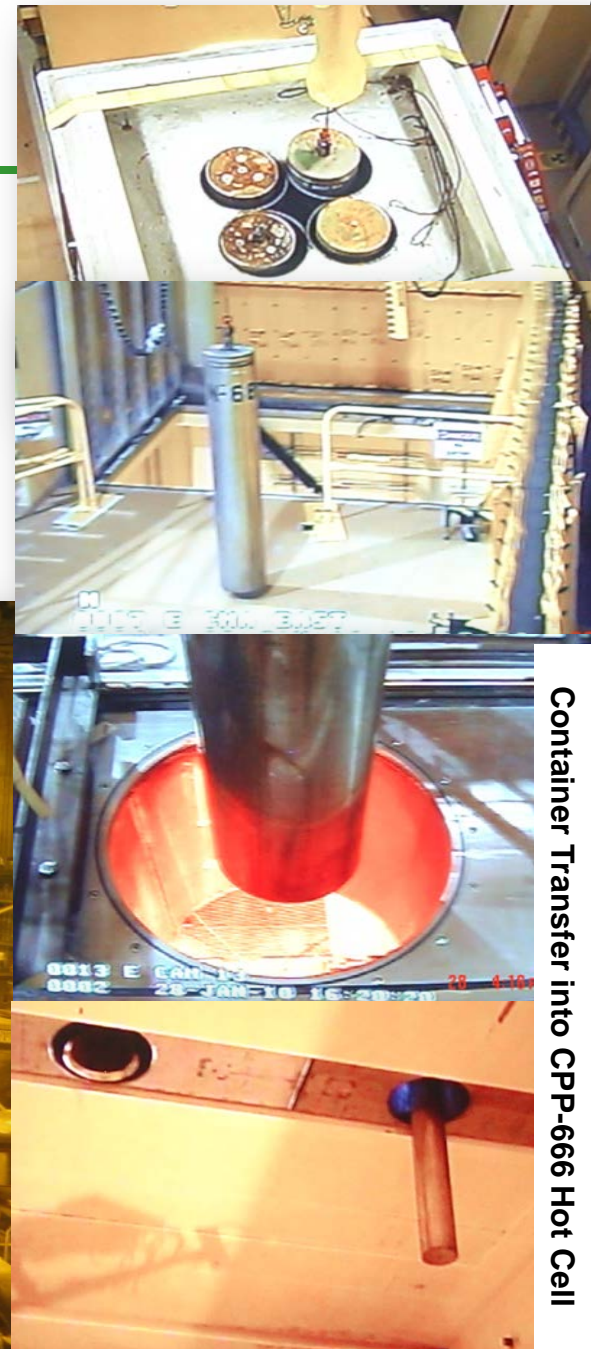
Loading ISC onto Truck

RH-TRU Process (Waste Repackaging)

- CPP-659 Decontamination Hot Cell
 - Initially used to decontaminate equipment associated with the calciner.
 - Hot cell now used for waste repackaging.
- CPP-666 Florinel Dissolution Process Hot Cell
 - Cell initially designed for fuel reprocessing.
 - Modified for RH-TRU repackaging using ARRA funding.
 - Modifications support on-going RH waste mission 2018 and beyond.



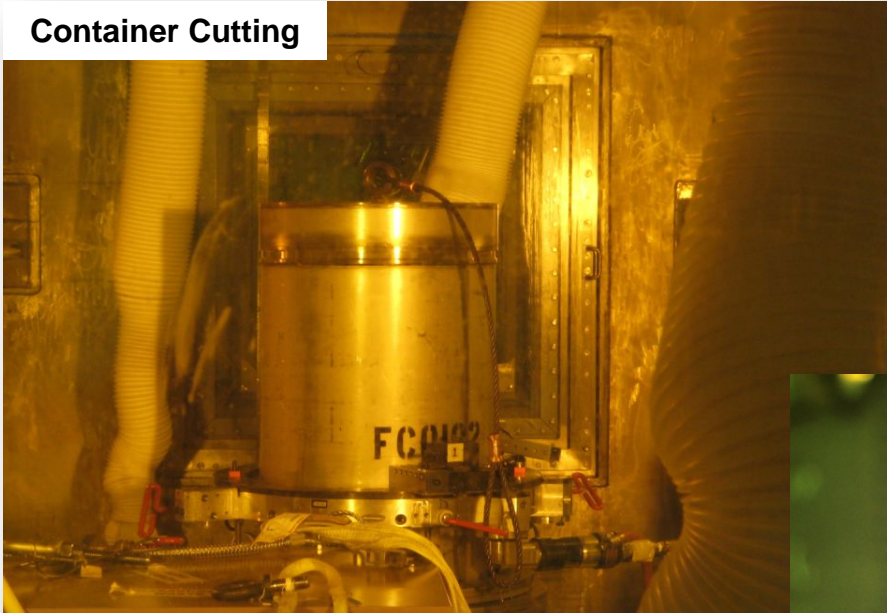
CPP-666 Hot Cell Operations



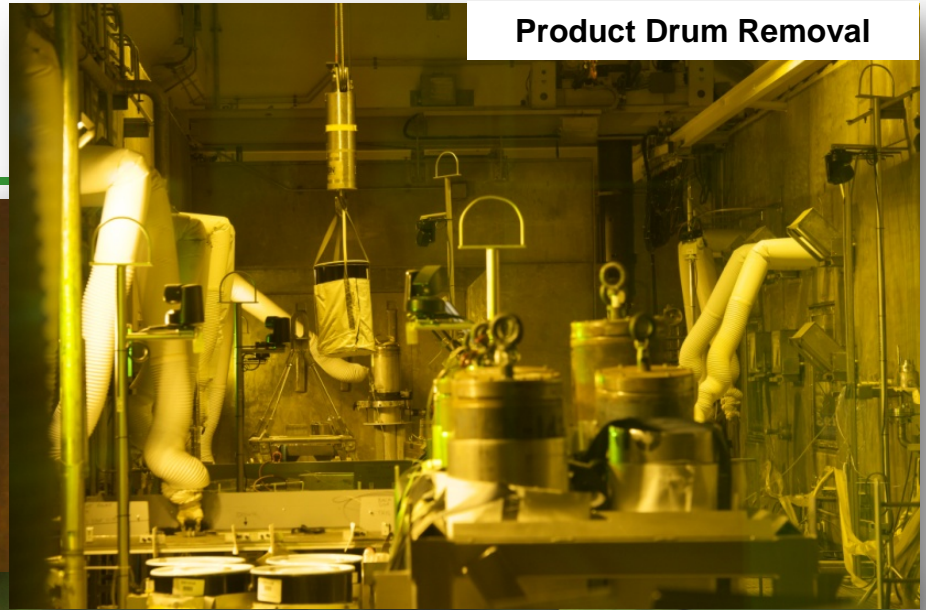
Container Transfer into CPP-666 Hot Cell

Waste Repackaging in Hot Cell

Container Cutting



Product Drum Removal



Waste Removal from Container



Prohibited Item Removal from Waste

RH-TRU Process (Characterization and Shipping)

- Characterization
 - Examines repackaged waste for shipment to WIPP.
 - Creates a record that demonstrates waste meets WIPP waste acceptance criteria.
 - Performed in CPP-659.
- Shipping
 - Once approved by WIPP.
 - Waste loaded into RH-72B casks.
 - Transported to WIPP for final disposal.
 - Casks loaded in CPP-659.



Current Status of RH-TRU Work

- Shipping to WIPP
 - 260 Shipments to Date of 526 Total
- ARRA Funded RH-TRU
 - Repackaged 118 Containers for 21.6 m³.
 - \$9M of cost savings to extend ARRA work in FY2012.
 - Finish repackaging by 2013 using Base funding.
- Other RH-TRU
 - Repackaged 61 containers.
 - Finish repackaging by 2013.
 - Ship waste to WIPP by 2014.



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RH-TRU Scope Looking Forward

- Completion of ARRA Funded Waste
- Completion of Other Waste
- Idaho Settlement Agreement Compliance
 - Approximately 100 containers of Settlement Agreement RH-TRU remaining at MFC.
 - All remaining RH-TRU sodium contaminated.
 - Develop/Install sodium treatment system.
 - Finish repackaging by 2017 to allow treatment and shipping by 2018.
- Waste Beyond Idaho Settlement Agreement
 - Newly generated RH-TRU.
 - RH mixed low level waste.
 - Continued use of CPP-666 hot cell beyond 2018.



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INL Remote Handled Waste Inventory

