



HLW Canister Relocation & Storage Project



Project Summary

Key Canister Relocation & Storage Movement Activities

- Construct canister storage pad
- Fabricate concrete casks with an inner stainless steel overpack to hold 5 canisters of HLW
- Retrieve canisters from storage and decontaminate
- Load canisters into overpack and concrete storage cask
- Relocate packaged canisters to on-site storage area
- Maintain casks at passive canister storage area

Approach Assures Safety, Efficient Design, and Regulatory Compliance

- Canister storage system consistent with commercial spent fuel dry cask storage systems
- Facility upgrades and construction activities engineered to support on-site relocation of canisters
- Canister retrieval, relocation, and storage activities planned and conducted to minimize radiological and environmental hazards
- Regulatory review and concurrence for relocation plan and construction activities
- Canisters licensed for shipment by Nuclear Regulatory Commission
- Storage facility maintained to ensure security and canister shipment readiness



Solidified high-level radioactive waste stored inside the Main Plant Process Building at the West Valley Demonstration Project is being relocated to prepare the structure for demolition. The multi-year relocation project involves building a storage pad and containers for the canisters, facility and equipment upgrades, and canister relocation.

Efforts are underway at the West Valley Demonstration Project (WVDP) to decommission the former nuclear fuel reprocessing facility and prepare it for demolition. As part of that work, CH2M HILL Babcock & Wilcox, LLC, (CHBWV) the prime contractor to the U.S. Department of Energy for Phase 1 Decommissioning activities, is preparing to relocate canisters of vitrified glass high-level radioactive waste (HLW) stored inside the Main Plant Process Building (MPPB). The waste, which was produced at the site between 1996-2002 during the solidification of liquid HLW, was placed in storage inside the MPPB with the expectation of near-term off site shipment for disposal.

Since there is no federal repository available to accept HLW, the 278 glass-filled canisters (275 HLW production canisters and 3 end-of-process canisters) will remain in storage at the WVDP indefinitely. The canisters and one container of spent nuclear fuel debris will be relocated to a free-standing independent cask storage area on the site. They will remain there in secure, passive storage and ready for off-site shipment and disposal. This will allow pre-demolition activities to proceed inside the MPPB.

The planned storage area is modeled after passive, dry spent fuel storage systems in use at commercial nuclear power plants in the U.S. It features above-ground, shielded cask storage which requires little ongoing maintenance and no supplementary ventilation.



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Storage Pad Construction

- On-site location adjacent to rail spur
- Excavate area; install engineered backfill
- Construct reinforced concrete pad



Storage Cask Preparations

- Construct internal stainless steel overpack for five-canister storage array
- Fabricate external reinforced concrete storage casks



Canister Preparation and Movement

- Retrieve canisters from MPPB storage and decontaminate
- Load canisters into stainless steel overpack within the reinforced concrete storage cask
- Relocate casks to on-site storage pad



Secure On-site Storage

- Passive 50+ year design requires minimal active maintenance
- Storage configuration is consistent with commercial dry nuclear fuel storage systems
- Canisters ready for off-site shipment

The West Valley Demonstration Project (WVDP) is a U.S. Department of Energy-led environmental remediation project located approximately 35 miles south of Buffalo, NY. CH2M HILL Babcock & Wilcox, LLC, (CHBWV) was formed to meet the specific requirements of Phase 1 decommissioning of the WVDP. The limited-liability partnership combines the experience and capabilities of CH2M HILL Constructors Inc. (CH2M HILL), Babcock & Wilcox Technical Services Group, Inc. (B&W), and Environmental Chemical Corporation (ECC).