

Bringing Down West Valley's Vit Plant

After demolishing West Valley's vitrification facility late last year, crews are in the final stages of bringing down seven ancillary support buildings.

Crews with the Department of Energy's Office of Environmental Management in September of 2018 completed the largest and most complex environmental cleanup achievement at the West Valley site to date: demolition of the 10,000-square-foot vitrification building once used to solidify thousands of gallons of radioactive waste. Since then, Environmental Management and its prime contractor, CH2M Hill BWXT West Valley (CHBWV), have made progress on the demolition of seven ancillary buildings that supported site operations, reducing the footprint and associated legacy risks of the 200-acre West Valley Demonstration Project.

Located near Ashford, N.Y., about 30 miles southeast of

Above: CHBWV employees and subcontract workers with American DND tear down portions of West Valley's vitrification plant in May 2018. Demolition of the main facility, a 10,000-ft², 50-foot-tall building made of thick, reinforced concrete walls, was completed in September 2018. Using heavy equipment and specialized tools, workers tore down the building in three phases, including the safe removal of four in-cell coolers weighing 7,188 pounds each, six shield windows, and a 38,000-pound process crane. In the final phase of demolition, crews removed two doors—one weighing 60 tons, the other 100 tons—as well as cranes and other equipment.

Buffalo, the West Valley Demonstration Project is the site of a former commercial nuclear fuel reprocessing center operated by Nuclear Fuel Services. The plant operated from 1966 to 1972 until, facing escalating regulatory requirements, Nuclear Fuel Services gave up control of the center in 1980, leaving behind the plant's in-process nuclear wastes. Subsequently, the West Valley Demonstration Project Act of 1980 directed the DOE to decontaminate and decommission West Valley and solidify the remaining 600,000 gallons of liquid high-level radioactive waste through vitrification.

From 1996 to 2002, the West Valley vitrification plant solidified the liquid waste, creating 278 stainless steel canisters of borosilicate glass containing approximately 15 million curies. The canisters were relocated from inside the main process building to a temporary storage area on-site in 56 steel-lined reinforced concrete casks with a 50-year design life. They will remain on-site until a federal repository becomes available. D&D of the plant began shortly after with the removal of the facility's three major vitrification components: the melter, the concentrator feed makeup tank, and the melter feed hold tank.

Photos courtesy of DOE Office of Environmental Management and Joseph Pillittere, CH2M Hill BWXT West Valley.



The vitrification plant before crews began demolition work.



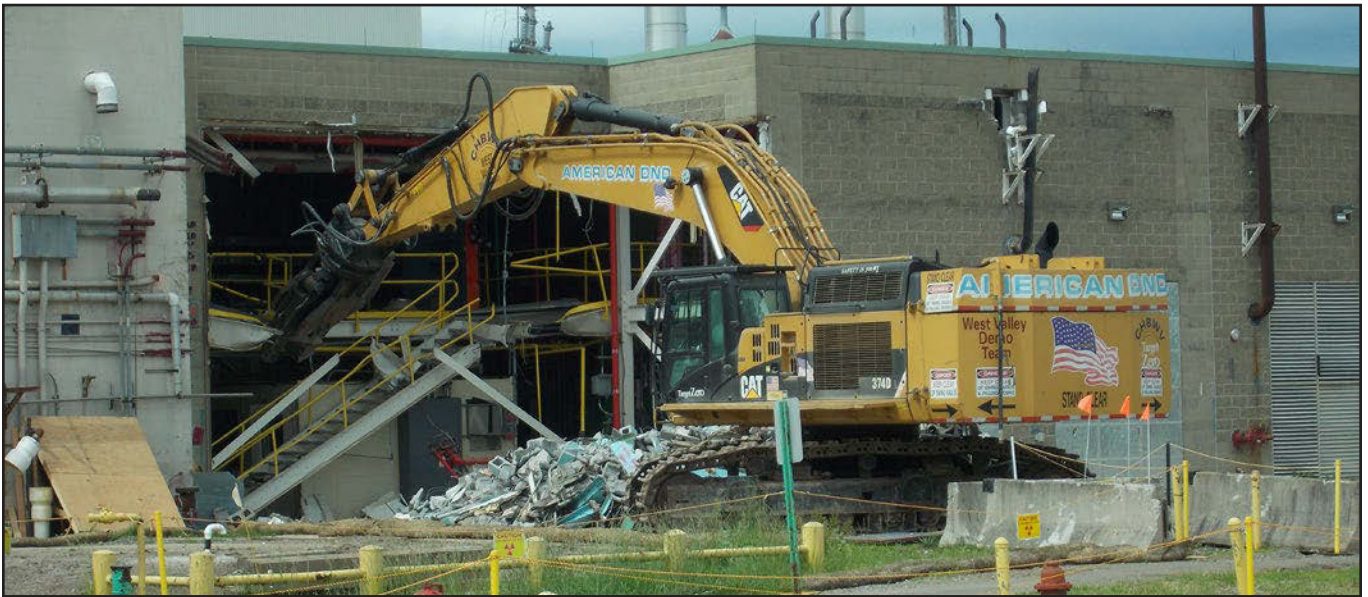
The West Valley laundry facility was one of seven ancillary support buildings to be demolished. Originally built in 1964 as the site's maintenance building, the support structure later became the laundry facility in the early 1970s. The 1,456-ft² building was constructed of concrete block, along with a steel frame and concrete slab on grade.

Bringing Down West Valley's Vit Plant



Left: The laundry facility was removed to slab, which was painted to encapsulate any remaining contaminants.

Below: Demolition crews with American DND remove the stairs from the utility room extension building. The support building housed two oil-free air compressors to supply breathing air and instrument air to the site, two boilers to provide steam for heating and process operations, an emergency generator for the site, a control room for utility operations, and an electrical switchgear room that supported the building and its equipment.



A steel beam welded by a hydraulic excavator is used to bring down the walls of the utility room extension. The room was added to the main plant utility room to help augment the site's aging electrical supply system, preventing electrical outages or other complications as the facility melted West Valley's high-level radioactive waste into a stable glass form.



The main plant utility room (left), laundry room (middle), and utility room extension (right) as seen before demolition began. The main plant process building is seen in the background.



Debris from the demolition is loaded and packaged for off-site disposal. Scott Anderson, president of cleanup contractor CHBWV, said, "Protecting the workforce and the environment were paramount during the demolition process. We completed this challenging milestone using lessons learned and look forward to applying those best practices on future projects." ■