

DOE SAVANNAH RIVER SITE, K COOLING TOWER | AIKEN, SC



PROJECT HIGHLIGHTS

- » Multi-story, heavy industrial demolition & site restoration of the 2nd largest cooling tower in the world to be imploded
- » Waste material downsizing and segregation
- » Finished one month ahead of schedule & under budget
- » Completed without any recordable injuries
- » Recycled 1,600 tons of steel rebar, stainless steel, and aluminum piping, steel plates, and copper wire

Implosion of the 2nd largest cooling tower in the world.



Hyperbolic Cooling Tower



May 2010–September 2010



\$1,009,483



American DND, Inc.



Demolition Waste Removal



Hazardous Material Removal



Recycling



Zero OSHA Recordable Injuries

LVI delivered waste management and site restoration for the Department of Energy (DOE) Savannah River Site’s K-Reactor hyperbolic cooling tower demolition. This 455-foot-tall and 333-foot-wide heavily-reinforced concrete structure was the second largest cooling tower in the world to be imploded.

Built in 1992 as part of the structures supporting the U.S. Department of Energy’s National Defense Initiative at the Savannah River Site and the K Area Reactor, the tower became part of a 67 percent site-wide operational footprint reduction initiative funded by the American Recovery and Reinvestment Act (ARRA) in 2009.

The tower was so tall that the strobe lights on top were used as a visual landmark for aircraft in the area. When strobes lights were permanently turned off, the FAA had to be notified that they would no longer serve as an aerial guide.

EXPEDITED WASTE REMOVAL AND RECYCLING

LVI provided extensive personnel and heavy equipment resources to downsize and load-out demolition debris after the implosion led by American DND on May 25th, 2010. By August 26th, LVI had sized, loaded and hauled over 1,400 truckloads of concrete and PVC fill materials without incident to the on-site disposal cell. This included



ZERO OSHA RECORDABLE INCIDENTS & ZERO LOST TIME ACCIDENTS



Sequence showing waste removal and site restoration



approximately 13,000 cubic yards of concrete and 19,500 yards of PVC fill. Additionally, over 1,600 tons of steel rebar, stainless steel, and aluminum piping, steel plates, and copper wire were recycled.

SITE RESTORATION

Site restoration efforts included revegetating the surrounding area, site protection using barricades and water runoff management and rip-rap placement.

SPECIALTY IMPLOSION ENGINEERING

The height of the tower posed a unique challenge for demolition engineers, who spent months surveying the tower. Demolition efforts required site workers to place 3,860 separate charges, fueled by 1,300 pounds of nitroglycerin-based explosive, along the lower 250 feet of the structure. Due to the unusual shape, a custom designed and fabricated basket was attached to a crane with a carrying capacity of 10,000 pounds.

The basket held up to six workers along with the necessary equipment for drilling and placement of 1,300 pounds of explosives. The personnel basket, designed to meet all OSHA and ANSI standards, literally could roll around the tower as the crane moved it along.

The implosion was a complete success. The actual detonation took eight seconds. The tower fell within the footprint of the tower basin, as planned, with less than 1 percent falling outside the base ring. The dust cloud dissipated within 12 minutes. The closed public roadways were reopened within 15 minutes of the detonation. The seismic impact was measured at less than 1/6th the allowable limit for “peak particle velocity.”

TARGET ZERO SAFETY

The project was completed one month ahead of schedule, under budget, with zero OSHA Recordable Incidents and zero lost time accidents.

Project Managed By LVI Environmental Services Inc., a subsidiary of LVI Services Inc. | **Client Contact** Bill Schaab, Vice President, American DND, Inc., 716-984-7566, bschaab@americandnd.com