

N Reactor's Cooling Water Building Begins Demolition

Removal of the final filter tank is key for demolition of a structure along the river – a step closer to cocooning N Reactor.



A 96,000 pound box was custom engineered for safe transport of contaminated filter tanks to the Environmental Restoration Disposal Facility.

Background

During the Cold War, the Recirculation Cooling Building, also known as the 107-N Building, filtered water from the N Reactor's fuel storage basins, which stored highly radioactive fuel rods. Highly contaminated settling and filtering tanks have been removed from the structure located behind Hanford's last operating nuclear reactor on the bank of the Columbia River. A special box transported the last three most contaminated tanks to a disposal site at central Hanford's Environmental Restoration Disposal Facility (ERDF).

Where is 107-N located?

N Reactor and the buildings that supported it during its operation from 1963-1988 are located near the northern most boundary of the Hanford site along the Columbia River. The 107-N Building sits near the edge of the river directly behind N Reactor.

What are the potential hazards for the workers and environment?

There are many industrial hazards that include asbestos, toxic chemicals and radiological contamination. The U.S. Environmental Protection Agency, Washington State Department of Ecology and the U.S. Department of Energy have agreed that the reactor complex needs to be cleaned up to protect the public and river's environment from harm.

What is being done to prevent contaminated waste from spreading during demolition?

The workers reduce exposure risks by building a mock-up and practicing their tasks before entering contaminated work places. A team planning effort of craft workers, engineers and supervisors reduced exposure and safety risks.

What are the box and the tanks?

A specially engineered steel box shipped the three most contaminated tanks from the N Reactor area to the Environmental Restoration Disposal Facility. The 19-by 19-foot square and 18-foot-tall box provides shielding from radiation contamination inside the tank and meets the regulatory transportation requirements. The two sand filter tanks weigh approximately 60,000 pounds and the T-1 tank is nearly 80,000 pounds. When in use, the tanks filtered contaminated water from N Reactor's fuel storage basin before circulating the water back to the basin.

Are there project deadlines and when is demolition scheduled to be completed?

The complete restoration for N Reactor's industrial complex is scheduled for September 2012. The demolition of the 107-N Building is scheduled for September 30, 2009, meeting a contract milestone.



To meet transportation requirements, this custom steel box was delivered to Hanford for shipping the tanks.

What will N Reactor look like when it's finished?

First, workers will demolish the main building down to the four-foot-thick concrete shield walls surrounding the reactor core, and then they will remove all equipment and stabilize all loose contamination within the facility by sealing openings with concrete or steel plates. A new roof, called a safe storage enclosure, is installed over the remaining structure, known as "cocooning." Heat and moisture sensors are remotely installed to monitor conditions inside the sealed reactor building.



Conceptual drawing of cocooned N Reactor – complete by September, 2012.



The sand filters from N Reactor will be buried in central Hanford. The T-1 tank will be buried inside the box due to high radiation levels.

Hanford's cocooned reactors are scheduled to remain in interim safe storage for up to 75 years to allow the U.S. Department of Energy, regulators and other stakeholders to determine the final disposal method and to allow the structures' high radiation levels to decay to safer levels. Once every five years, workers will enter the structure to conduct inspections and make any needed repairs. During the inspection the buildings are checked for structural integrity, radiological contamination and other conditions of the facility.

After the tanks are removed, what happens next?

The Recirculation Cooling Structure (107-N) will be demolished only after all the hazardous materials are moved or contained. Located along the bank of the Columbia River, workers are taking precautions to ensure the contaminants are contained and stabilized for shipment to Hanford's Environmental Restoration Disposal Facility.