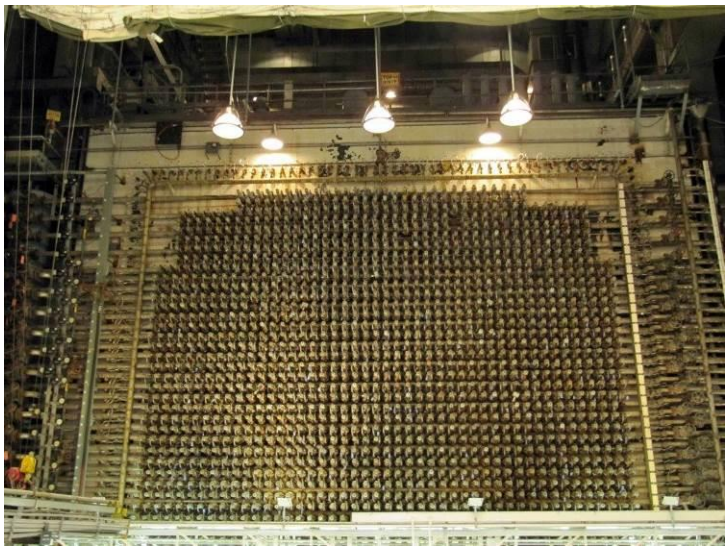
Background and History

The B Reactor National Historic Landmark at the Hanford Site in Washington state was the world's first full-scale plutonium production reactor. Created as part of the top secret Manhattan Project during World War II, B Reactor produced plutonium used in the Trinity Test, as well as for the atomic bomb dropped on Nagasaki, Japan, to end World War II. The reactor was designed and built by the DuPont company based on experimental designs tested by Dr. Enrico Fermi at the University of Chicago and tests from the X-10 Graphite Reactor at Oak Ridge, TN. B Reactor was graphite moderated and water cooled. It consisted of a 28 by 36-foot, 1,200-ton graphite pile, penetrated through its entire length horizontally by 2,004 aluminum process tubes containing uranium fuel slugs. Cooling water from the nearby Columbia River was pumped through the aluminum tubes around the uranium slugs. This design allowed the reactor to produce plutonium-239 by irradiating naturally occurring uranium with neutrons.



Construction of B Reactor began in October 1943, and fuel was loaded into B Reactor on Sept. 13, 1944—just 11 months later. B Reactor went "critical" (started up) at 10:48 p.m. on Sept. 26, 1944 and reached full power in February 1945.

Its mission thought complete after the end of World War II, B Reactor was shut down at the end of 1946. However, amid growing tension between the United States and the former Soviet Union, B Reactor was restarted in 1948 to support production of plutonium for the Cold War

with the Soviet Union until 1967. The B Reactor was shut down permanently on Feb. 12, 1968.

Path to Preservation

More than 30 buildings and 20 service facilities were part of B Reactor operations. From 1969 through 2006, all were dismantled and removed except for the reactor building, main exhaust stack and the river pump house, which still pumps water used for modern site cleanup activities. As recently as 2008, plans called for the B Reactor and its cooling stack to be dismantled as part of Hanford cleanup.

The B Reactor was named a National Historic Mechanical Engineering Landmark by the American Society of Mechanical Engineers in 1976, was listed in the National Register of Historic Places in 1992, was designated a National Historic Civil Engineering Landmark in 1994, and became a National Historic Landmark (NHL) in 2008. At the ceremony conferring NHL status on the facility, the acting Deputy Secretary of the Department of Energy (DOE) stood with the Deputy Secretary of the U.S. Department of Interior and announced a policy change for B Reactor. Its new path would be preservation and public access.

DOE began to make improvements to the reactor in 2008 to support public access (e.g., life safety code upgrades, signage, creating storm doors, and designing safety approaches). DOE hosted its first public tours of B Reactor in early 2009 and by 2012 was hosting about 10,000 visitors to B Reactor each year. Today, DOE is well on its way to universal public access to B Reactor, having dropped the U.S. citizenship requirement in 2011 and eliminated the age requirement in 2015.

The B Reactor has always had strong support from a variety of local constituent organizations. The B Reactor Museum Association (BRMA), for example, formed more than 25 years ago with the goal of saving the B Reactor from demolition. In the early 1990s, that grass roots support grew to include many local and state elected officials, the Tri-City Development Council, Visit Tri-Cities, and members of the Washington state congressional delegation. In 2004, Congress directed the National Park Service (NPS) to undertake a Special Resource Study to determine whether it was appropriate and feasible for the NPS to create a new unit of the Park system devoted to telling the Manhattan Project story. The study ultimately answered in the affirmative and recommended park locations at each of the three original Manhattan Project sites—Hanford, Oak Ridge, TN., and Los Alamos, N.M.

In December 2014, then Congressman Doc Hastings, with support from Washington's U.S. Senators, Maria Cantwell and Patty Murray, obtained congressional authorization for the new Manhattan Project National Historical Park. President Barack Obama signed the bill into law on Dec. 19, 2014. DOE and NPS signed a Memorandum of Agreement (MOA) for joint management of the new park on November 10, 2015. Consistent with the legislation, DOE will continue to own and operate its historic facilities and will preserve and provide enhanced public access to its facilities in the park. NPS, meantime, will interpret the Manhattan Project story for the public and provide visitor services at the three park locations.