# The History of NASA'S Plum Brook Station

**Today, Plum Brook Station is an active testing and research installation housing some of the world's most advanced space environment simulation facilities.**

**Plum Brook Station is a satellite of NASA's (National Aeronautics and Space Administration) Glenn Research Center (formerly NASA Lewis Research Center) situated on 6,400 acres of land, fifty-six miles west of Cleveland, near Sandusky, Ohio.**

The history of Plum Brook Station dates back to 1941 when the War Department acquired about 9,000 acres of land to construct a munitions plant. The plant, then called the Plum Brook Ordinance Works—named after the creek running through the site— produced munitions, such as TNT, until the end of World War II. After the war, the land remained idle until 1956 when the National Advisory Committee for Aeronautics (later known as NASA) obtained 500 acres for the construction of a nuclear research reactor. The Reactor Facility, designed to study the effects of radiation on materials used in space flight, was the first of fifteen test facilities eventually built by NASA at Plum Brook Station. By 1963, NASA acquired the remaining land at Plum Brook for these additional facilities.

In 1973, after successfully completing the objective of landing humans on the Moon and returning them safely to Earth, NASA was faced with budget reductions from Congress. These budgetary constraints caused NASA to defer many of its longer term research and development programs and cease operations at several research facilities across the country, including those at Plum Brook Station.

The major test facilities at Plum Brook were maintained in a standby mode, capable of being reactivated for future use. Smaller facilities were not maintained, and some were dismantled. The Reactor Facility was shut down and all of the nuclear fuel was removed and shipped offsite to a U.S. Department of Energy (DOE) facility in Idaho for disposal or reuse. NASA placed the facility in a safe, secure and dry storage mode and conducted strict oversight and ongoing environmental monitoring around the reactor.

**Plum Brook Station, a part of the Sandusky, Ohio community for over 35 years, provides jobs within the community, works with local schools, is a member of the local Chamber of Commerce, and supports the local economy by using materials from local businesses. Plum Brook Station's employment needs provide an opportunity for training the local work force in state-of-the-art technology and its presence provides a gateway to high technology in the Sandusky area.**

## Plum Brook Station's four "World Class" facilities currently in operation include:

**Space Power Facility**
the world's largest thermal vacuum chamber for ground testing large equipment in a simulated space environment (i.e., surrounded by a vacuum and at very hot and cold temperatures) before taking the equipment into space

**Spacecraft Propulsion Research Facility**
the world's only facility that simulates the actual flight conditions of space on full-size rocket vehicles

**Hypersonic Tunnel Facility**
the United States' largest clean-air wind tunnel capable of performing tests up to seven times the speed of sound

**Cryogenic Propellent Test Facility**
tests cutting-edge technology for high-energy space propulsion systems of the future

In 1987, NASA, along with several other government agencies and the private sector, expressed a renewed interest in the unique facilities in standby mode at Plum Brook Station. Because reactivating these facilities would be expensive and would take years to accomplish, NASA decided to perform this work in partnership with the potential users. Under a unique arrangement, users were required to pay for costs associated with their individual test programs at Plum Brook, including the "up front" cost of reactivating the facility from its standby mode. NASA civil servants who work at Plum Brook Station oversee all of the work performed and they continue to successfully operate in this manner today.

***There are some facilities at Plum Brook Station that have remained closed, such as the Reactor Facility, which was designed to study the effects of radiation on materials used in space flight. NASA plans to completely decommission the Reactor Facility by 2007 and enable this area to be safely reused.***

**Over the years, research conducted at Plum Brook Station has significantly contributed to the development and growth of NASA's space program. In 1985, the Department of the Interior National Park Service declared Plum Brook Station's Spacecraft Propulsion Research Facility, the world's only facility that simulates the actual flight conditions of space on full-size rocket vehicles, as a national historic site. Plum Brook Station's more recent contributions include completing the testing of the fuel tank for the X-33 experimental spaceplane and operating the hypersonic wind tunnel used to develop high-speed propulsion systems that fly at more than seven times the speed of sound (more than 5000 mph).**

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