National Aeronautics and Space Administration

NASA GLENN RESEARCH CENTER'S PLUM BROOK STATION

Plum Brook Station is a remote test facility for NASA's Glenn Research Center in Cleveland. Located on 6,400 acres in Sandusky, Ohio, Plum Brook is home to world-class test facilities, where ground tests are performed for the U.S. and international space and aeronautics communities.

FACILITIES AND PROJECTS

The Space Environments Complex, formerly known as the Space Power Facility, houses the world's largest and most powerful space environment simulation facilities, including a thermal vacuum chamber measuring 100 feet in diameter by 122 feet high. The Reverberant Acoustic Test Facility is the world's most powerful spacecraft acoustic test chamber, and it can simulate the noise of a spacecraft launch up to 163 decibels, or as loud as the thrust of 20 jet engines. The Mechanical Vibration Facility is the world's highest capacity and most powerful spacecraft shaker system, subjecting test articles to the rigorous conditions of launch. NASA is using the Space Environments Complex to test the Orion spacecraft, which will carry astronauts to the moon and other destinations.

The In-Space Propulsion Facility (also called B–2) is the world's only facility capable of testing full-scale, upper-stage launch vehicles and rocket engines under simulated space conditions. The engine or vehicle can be exposed for indefinite periods to low ambient pressures, low-background temperatures and dynamic solar heating to simulate the environment of orbital or interplanetary travel. SpaceX's Crew Dragon spacecraft underwent tests in this facility.

The Combined Effects Chamber is Plum Brook's newest facility. Designed to allow safe large-scale liquid hydrogen (LH_2) experiments, this facility can simulate the conditions found on the surface of the moon and Mars.

The Hypersonic Test Facility (HTF) was originally designed to test nuclear thermal rocket nozzles. The facility was later converted to a high-velocity wind tunnel that can test engines and other aircraft systems at up to seven times the speed of sound. NASA is currently using it for the NASA Electric Aircraft Testbed (NEAT) to develop hybrid-electric propulsion for future commercial aircraft.

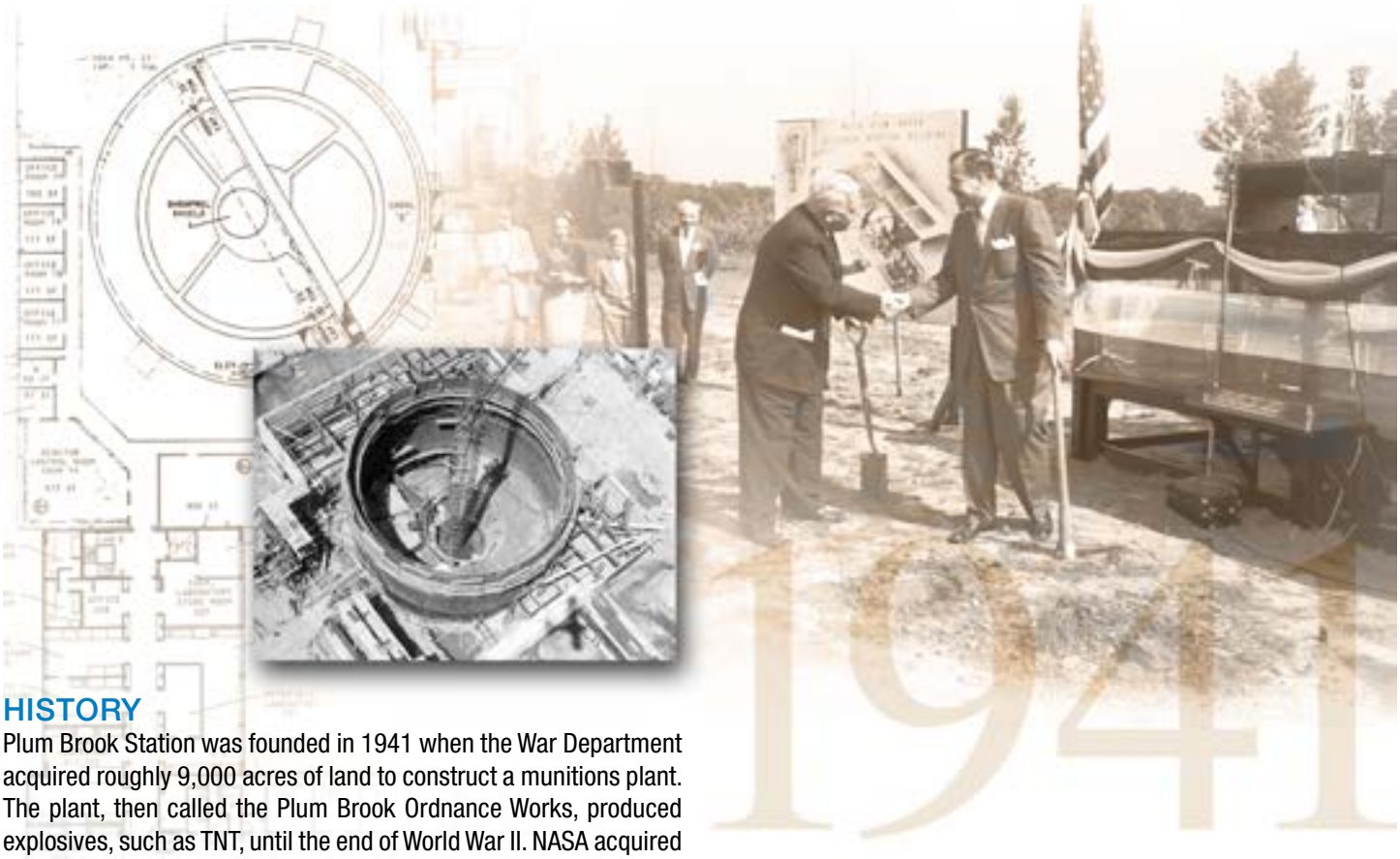

Reverberant Acoustic Test Facility


Vacuum Test Chamber in SEC


In-Space Propulsion Facility


Combined Effects Chamber


Hypersonic Test Facility



HISTORY

Plum Brook Station was founded in 1941 when the War Department acquired roughly 9,000 acres of land to construct a munitions plant. The plant, then called the Plum Brook Ordnance Works, produced explosives, such as TNT, until the end of World War II. NASA acquired the land in 1963.

From 1963 to 1973, the Plum Brook Reactor Facility was used to study the effects of radiation on materials used in spaceflight. It was shut down in 1973 and all the nuclear fuel was shipped offsite to a U.S. Department of Energy facility in Idaho for disposal or reuse. NASA completed decommissioning and demolition of the Reactor Facility in 2013, leaving the land where it was located safe for reuse.

Plum Brook reopened in 1987 and has since made significant contributions to the development of NASA and commercial space systems. The station gets its name from the small stream running through the property that, at one time, had plum trees growing nearby.

ENVIRONMENT

Plum Brook is home to many animals, including deer, coyotes, gray foxes, squirrels, woodchucks, raccoons, owls, red-tailed hawks, snakes and amphibians. It is a stopping point for dozens of migratory bird species, some of which are quite rare. In fact, a nesting pair of bald eagles at Plum Brook usually has a brood of two chicks each year. It is quite common to see large vultures and wild turkeys on station. Because large exclusion zones prevent much of the station from being developed, many areas feel more like a nature preserve than a space center. Environmental scientists actively work to restore, preserve and protect the wide range of natural environments, from oak savannahs to open prairies, found on the station.

STAFF

More than 100 people work at Plum Brook Station, including civil servants and onsite contractors. A highly skilled workforce of engineers, technicians and administrative and support personnel comprise the Plum Brook team.

David L. Stringer is director of Plum Brook Station. Stringer retired from the U.S. Air Force on Jan. 1, 2007, as a Brig. Gen. after 32 years of active service.

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