



## B61-12 Life Extension Program

The National Nuclear Security Administration maintains and enhances the safety, security, and effectiveness of the U.S. nuclear weapons stockpile without nuclear explosive testing. The B61-12 Life Extension Program is essential to enabling the NNSA to accomplish its mission to certify the effectiveness of the nation's nuclear deterrent.

### Overview

The B61 nuclear gravity bomb, deployed from U.S. Air Force and North Atlantic Treaty Organization (NATO) bases, has almost 50 years of service, making it the oldest and most versatile weapon in the enduring U.S. stockpile. Numerous modifications have been made to improve the B61's safety, security, and reliability since the first B61 entered service in 1968, and four B61 variants remain in the stockpile: the 3, 4, 7, and 11. However, the aging weapon system requires a life extension to continue deterring potential adversaries and reassuring our allies and partners of our security commitments to them.

The B61-12 LEP will refurbish, reuse, or replace all of the bomb's nuclear and non-nuclear components to extend the service life of the B61 by at least 20 years, and to improve the bomb's safety, effectiveness, and security. The design maximizes component reuse whenever possible, and omits higher-risk technologies while reducing costs and schedule risks. This life extension program will address all age-related issues of the bomb, and enhance its reliability, field maintenance, safety, and use control. With these upgrades and the addition of a U.S. Air Force-supplied Boeing Tail Kit Assembly, the B61-12 LEP will consolidate and replace four B61 weapon designs. When fielded, the B61-12 will balance greater accuracy provided by the modern tail-kit with a substantial reduction in yield, with no overall change in military requirements or characteristics.

The B61-12 LEP is critical to sustaining the nation's strategic and non-strategic air-delivered nuclear deterrent capability. It will also ultimately allow NNSA to retire the B83 gravity bomb, the last megaton-class weapon in the stockpile. By the end of fiscal year (FY) 2024, completion of the B61-12 LEP will result in a 53 percent reduction in the number of gravity weapons fielded and an 87 percent reduction in the total amount of nuclear material used by air-delivered gravity weapons, while continuing to meet military requirements.

The B61-12 first production unit will occur in FY 2020. The bomb will be approximately 12 feet long and weigh approximately 825 pounds. The bomb will be air-delivered in either ballistic gravity or guided drop modes, and is being certified for delivery on current strategic (B-2A) and dual capable aircraft (F-15E, F-16C/D & MLU, PA-200) as well as future aircraft platforms (F-35, B-21).



An F-15E drops a B61-12 test unit during a development flight test.

## NNSA Nuclear Security Enterprise Roles

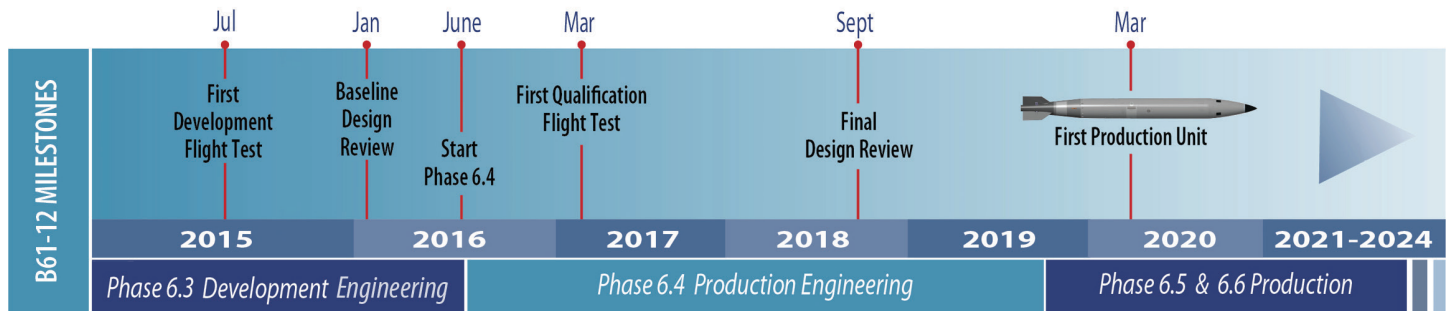
**Los Alamos National Laboratory** and **Sandia National Laboratories** are the design and engineering labs for the B61-12 LEP. In addition, Sandia is responsible for production of custom electronics, including neutron generators. Los Alamos is responsible for production of detonators and other classified components.

Additional production activities are performed at the following sites:

- **Kansas City National Security Campus** is responsible for producing 39 major non-nuclear component assemblies including firing, safing, and use control components.
- **Y-12 National Security Campus** is responsible for the remanufacture of components made of uranium and other materials.
- **Savannah River Site** is responsible for testing, evaluating and replenishing the gas transfer system.
- The **Pantex Plant** is responsible for producing high explosives, requalifying the B61 pit, and final assembly of the complete B61-12 bomb for delivery to the U.S. Air Force.



An F-15E conducts a vibration fly-around test.



## Major Accomplishments

The B61-12 LEP completed the last of three system-level development flight tests for ballistic and guided flight in October 2015 at Tonopah Test Range in Nevada.

In January 2016, the B61-12 LEP successfully completed its Baseline Design Review, which enabled NNSA to authorize the B61-12 LEP entrance into Production Engineering in June 2016. The program is on schedule to achieve first production unit in FY 2020.

## Major Milestones

- Conduct first System Qualification drop (first of 23) in FY 2017
- Conduct System Final Design Review in FY 2018
- Complete first production unit in FY 2020
- Complete production in FY 2025

