

**“The Nuclear Security Enterprise is at the highest level of activity since the Cold War with five major warhead modernization programs underway.”**  
 - Dr. Charles Verdon, Deputy Administrator for Defense Programs

## Overview

NNSA’s warhead modernization activities ensure that the U.S. nuclear weapons stockpile continues to meet Department of Defense (DoD) requirements while enhancing safety and security. NNSA’s modernization efforts address aging, unavailability of replacement parts, and integration with DoD’s modernized nuclear weapons delivery systems without providing new military capabilities or the need for explosive nuclear testing.

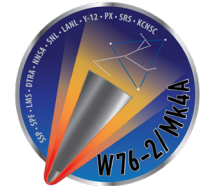
## Types

NNSA executes **three types** of warhead modernization activities:

**Life Extension Programs (LEP):** A program to refurbish warheads of a specific weapon type to extend the service life of a weapon. LEPs are designed to extend the life of a warhead by 20 to 30 years while increasing safety and security. NNSA is currently executing two LEPs: the **B61-12**, a gravity bomb for the U.S. Air Force, and the **W80-4** for use in the U.S. Air Force’s new Long Range Standoff (LRSO) cruise missile.

**Modifications:** A program that changes a current stockpile weapon-type’s operational capabilities. A modification may enhance the margin against failure, increase safety, improve security, replace limited life components, or address identified defects and component obsolescence. NNSA is currently executing two modifications: the **W87-1** that will replace the legacy W78 to provide continuity for the ground-based U.S. nuclear deterrent, as well as the **W76-2** for the U.S. Navy’s Trident II D5 submarine-launched ballistic missile (SLBM).

**Alterations (Alt):** A material change to, or a prescribed inspection of, a nuclear weapon or major assembly that does not alter the operational capability yet is sufficiently important to the user in terms of assembly, maintenance, storage, or test operations. NNSA is currently executing one major alteration, the **W88 Alt 370**, for the U.S. Navy’s Trident II D5 SLBM.



Air-launched cruise missile



Ground-launched intercontinental ballistic missile



Submarine-launched ballistic missile