Concerns Over Component Reliability Delay Trident Nuclear Warhead Upgrade

An unarmed Trident II missile launches from the Ohio-class ballistic missile submarine USS Rhode Island off the coast of Florida in May. The planned upgrade of the nuclear warhead on some U.S. Navy sub-launched missiles has been delayed for 18 months by unacceptable reliability of some components. U.S. Navy/John Kowalski

ARLINGTON, Va. — The planned upgrade of the nuclear warhead on some U.S. Navy submarine-launched ballistic missiles (SLBMs) has been delayed for 18 months by unacceptable reliability of some components.

Testifying Sept. 25 on Capitol Hill before the House Armed Services Committee's subcommittee on strategic forces, Charles P. Verdon, deputy administrator for defense programs for the National Nuclear Security Administration (NNSA), said that during stress tests to certify some electrical components of the weapons, some capacitors for the Navy's W88 Alteration 370 warhead for the Trident D5LE SLBM and the Air Force's B61 Mod 12 nuclear bomb did not meet the stringent reliability requirements. The capacitors were commercial-off-the-shelf (COTS) components.

Verdon said a blue-ribbon panel established by NNSA formed to study the matter "advised in June 2019 that the prudent approach was to accept the delay of these programs and replace these components rather than risk component failure in future years."

The recommendations were accepted by NNSA at that time, Verdon said, noting that NNSA is developing a specific production schedule and initial operational capability dates are being

explored.

Verdon said the capacitor of insufficient reliability was a $5 part, whereas the replacement capacitor – being built to a new standard that did not exist at the time the original capacitors were procured – cost $75. Although the figures for program delays are not yet final, he said the delay would cost NNSA an additional $120 million to $150 million for the W88 Alt 370 and $600 million to $700 million for the B61 bomb.

Verdon also said the additional costs could be mitigated by balancing the workload within NNSA's modernization portfolio. He said that any increase in funding would not be needed until fiscal 2021.

Vice Adm. Johnny Wolfe, the Navy's director of strategic systems programs, also testifying before the committee, said the upgrades for the W88 Alt 370 begun in 2008 focused on procuring the arming, fuzing and firing units and replacing the warhead's high explosives. He said the installation of the Alt 370 was delayed to a start of December 2019, "removing any schedule margin for the refurbishment effort."

He said the Navy and NNSA are planning for about an 18-month delay to the Alt 370 program and that the Navy is working with the ballistic-missile submarine fleet's operational commander, U.S Strategic Command, to mitigate the effect of the delays and ensure that the nation's strategic requirements are met on schedule.

"We will meet the requirements as we move forward," Wolfe said.

Verdon said that "[a]s a root cause, we identified that our methodology for the insertion of COTS components into high-reliability, long-life nuclear warheads needs to be improved" to avoid such future delays.

He said the NNSA “underestimated the variability between lots” in COTS-procured capacitors.

A closed classified session was held by the subcommittee following the open hearing.