



**National Nuclear Security Administration**

U.S. Department of Energy [www.nnsa.doe.gov](http://www.nnsa.doe.gov)

For Immediate Release

March 2, 2007

# NEWS

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## **Design Selected for Reliable Replacement Warhead**

WASHINGTON, D.C. -- The Department of Energy's National Nuclear Security Administration (NNSA) announced today that the Nuclear Weapons Council (NWC) approved a design for a joint NNSA and U.S. Navy program to provide a replacement warhead for a portion of the nation's sea-based nuclear weapons that will provide means to ensure long-term confidence in a more secure, smaller and safer nuclear weapons stockpile.

The design team from NNSA's Lawrence Livermore and Sandia National Laboratories was selected to develop the Reliable Replacement Warhead (RRW). NNSA and the national laboratories have determined that this design can be certified without requiring underground nuclear testing.

NNSA and the Navy will now work together to develop a detailed RRW project plan and cost estimate for developing and producing the system. This work will support a future decision to seek congressional authorization and funding in order to proceed into system development and subsequent production.

"The RRW design concept utilizes modern technology that was not available during the Cold War when our nuclear weapons were designed and built. This will permit significant upgrades in safety and security features in the replacement warhead that will keep the same explosive yields and other military characteristics as the current ones. RRW will take advantage of today's science to ensure the long-term confidence in the future stockpile," said Thomas P. D'Agostino, NNSA's acting administrator. "RRW builds on the successful scientific accomplishments of our Stockpile Stewardship Program, which helps to maintain our nuclear weapons without underground testing."

This announcement comes at a time when there is a sharp increase in the number of U.S. nuclear weapons being dismantled, permanently removing them from the stockpile. NNSA has accelerated its dismantlement process, following President Bush's 2004 decision to cut the number of U.S. nuclear weapons dramatically.

"Our RRW effort is in parallel with our efforts to eliminate nuclear weapons from the stockpile that are no longer needed for national security purposes. We have increased this year's dismantlement rate to 50 percent above last year, and in just five years, the U.S. nuclear weapons stockpile will be at its lowest point since the Eisenhower administration," D'Agostino said.

Teams from NNSA's Lawrence Livermore and Los Alamos National Laboratories partnered with Sandia National Laboratories to submit design proposals to the NWC. In late 2006, the NWC evaluated the proposals and determined that the RRW concept was feasible to sustain the nation's nuclear weapons stockpile.

"Both teams developed brilliant designs," said D'Agostino. "Because of the superior science across the nuclear weapons complex with assets like supercomputers, and the early design engagement with the production facilities, the laboratories were able to develop designs in nine months that were much more mature than they would have been after two years of work during the Cold War. This is an amazing scientific accomplishment that should not be overlooked."

The two nuclear weapons laboratories both submitted designs that fully met all RRW requirements. However, D’Agostino noted that higher confidence in the ability to certify the Livermore design without underground nuclear testing was the primary reason for its selection. That design was more closely tied to previous underground testing. While one of several factors, it was an especially important one to assure long-term confidence in the reliability of the nuclear weapons stockpile.

Several features of the Los Alamos design are highly innovative and will be developed in parallel with the Livermore effort. As they mature, the features may be introduced into the RRW design as it progresses.

An important aspect of RRW is its ability to exercise and maintain the critical skills of the country’s nuclear weapons design, engineering and production personnel. An integrated team of designers and engineers led by Livermore will work with the production plants to develop the nuclear explosive component of the weapon. Sandia will develop the non-nuclear components and ensure compatibility with the Department of Defense’s Trident submarine-launched ballistic missile delivery system. The U.S. Navy will lead the overall project team.

For the first time, NNSA’s production facilities fully participated in the design process to ensure that components and materials used in RRW will be safer and that parts will be easier to maintain and manufacture, moving NNSA towards a more efficient and smaller nuclear weapons complex.

The RRW will:

- Assure long-term confidence in the reliability of the nuclear weapons stockpile;
- Enhance security and prevent use by terrorists, rogue nations or criminal organizations through state-of-the-art technology;
- Improve the safety of the stockpile;
- Help to develop a nuclear weapons infrastructure that is more responsive to future national security needs;
- Utilize and sustain critical nuclear weapons design and production skills;
- Enable a reduced stockpile size by increasing confidence in the infrastructure to produce weapons if they are needed; and
- Decrease the likelihood that a nuclear test will be needed.

The NWC is a group of senior officials from the Defense Department and NNSA established by law to oversee nuclear weapons programs. It is chaired by Kenneth Krieg, undersecretary of defense for acquisition, technology and logistics. The other members, in addition to D’Agostino, are Admiral Edmund Giambastiani, vice chairman of the Joint Chiefs of Staff; Eric Edelman, under secretary of defense for policy; and General James Cartwright, commander of the U.S. Strategic Command.

Established by Congress in 2000, NNSA is a semi-autonomous agency within the U.S. Department of Energy responsible for enhancing national security through the military application of nuclear science. NNSA maintains and enhances the safety, security, reliability and performance of the U.S. nuclear weapons stockpile without nuclear testing; works to reduce global danger from weapons of mass destruction; provides the U.S. Navy with safe and effective nuclear propulsion; and responds to nuclear and radiological emergencies in the U.S. and abroad. Visit [www.nnsa.doe.gov](http://www.nnsa.doe.gov) for more information.