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### Reliable Replacement Warhead

The restructured Advanced Concepts program is now the Reliable Replacement Warhead. The November 2004 conference agreement included \$1,316,936,000 for directed stockpile work (DSW). The conference agreement provided \$460,754,000 for DSW Life Extension Programs. The conference agreement provided \$511,095,000 for DSW Stockpile Systems and \$75,000,000 for DSW Retired Warheads Stockpile systems. The conferees did not provide \$9,000,000 for advanced concepts research on new weapons designs, but the same amount was made available for the Reliable Replacement Warhead program to improve the reliability, longevity, and

### References

- Nuclear Weapons Complex Infrastructure Task Force (NWCITF) Draft Report 13 July 2005



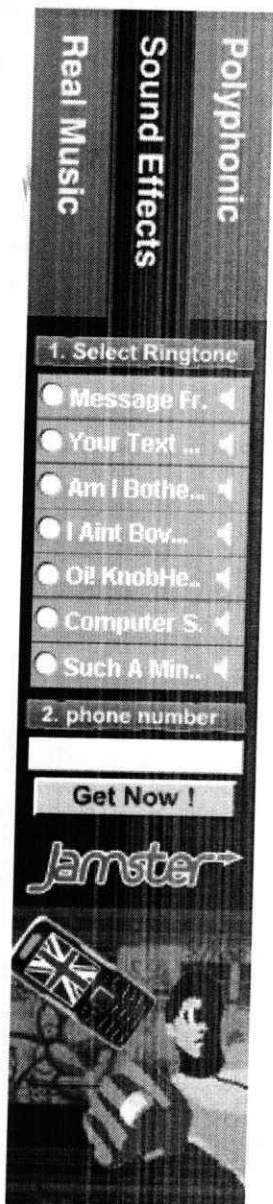
certifiability of existing weapons and their components. The conference agreement provided \$270,087,000 for DSW Stockpile services. No funds were provided for the Robust Nuclear Earth Penetrator (RNEP).

The research program as of February 2005 involved roughly 100 people. The goal is to develop a prototype within the next 5-10 years. The specifications represent a fundamental shift in design philosophy for the American strategic stockpile. Instead of focusing on limiting weight and size for improved delivery, the Reliable Replacement Warhead is intended to be dependable for a long period of time.

Skeptics argue that the W-76 is unreliable and, unlikely to detonate at its design yield. The W-76 is thus a candidate for replacement by the new Reliable Replacement Warhead.

On 18 May 2005 the House Armed Services Committee considered the portion of H.R.1815, the National Defense Authorization Act for Fiscal Year 2006, that falls under jurisdiction of the Subcommittee on Strategic Forces. This bill includes a RRW study and charter with mandated objectives including: reducing the likelihood of future nuclear testing and shrinking the size of the nuclear stockpile.

"Given that there is no immediate need for a new RRW warhead, Democrats strongly believe that the National Nuclear Security Administration should utilize designs and components that are already understood or have already been proven through testing. The RRW program should be used as a reason not to resume nuclear testing," declared Rep. John Spratt (D-SC).



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"The RRW program is simply a concept at this stage, and I intend to keep a close eye on its study," added Rep. Ellen Tauscher (D-CA). "Congress will not be in a position to know if the RRW program can meet the ambitious objectives set forth in this legislation until the Administration spells out the details of its plan."

Rep. Silvestre Reyes (D-TX) noted, "This bill will produce a full accounting of the objectives, methods, and costs of the RRW program, but I will reserve final judgment until this forthcoming information can be evaluated."

"The ratification of the Comprehensive Test Ban Treaty should be the logical end-result of a successful RRW program, yet the majority adamantly refused to include this as an objective of the program," said. Rep. Tauscher.

The House completed consideration of H.R. 2419, Energy and Water Development, and Related Agencies Appropriations Act for Fiscal Year 2006, on Tuesday, May 24, 2005. The bill was passed with a recorded vote of 416-13 (Roll No. 211). The bill did not include funding for the robust nuclear earth penetrator study but provides significant increases for the Sustainable Stockpile Initiative, including development of the Reliable Replacement Warhead.

In January 2005, the Secretary of Energy requested the Secretary of Energy Advisory Board (SEAB) to form the Nuclear Weapons Complex Infrastructure Task Force (NWCITF), reporting to the SEAB. The Draft Report, released 13 July 2005, noted that:

"... the Task Force is confident that the Complex can now design a nuclear weapon that is certifiable without the need for underground testing. ...

"The present stockpile was designed during a period when the major operational driver, particularly for submarine-launched ballistic missile (SLBM) and intercontinental ballistic missile (ICBM) weapon systems, was maximizing yield and minimizing weight and volume. Cost was not a primary driver.

"Technological advances in the current and future DoD nuclear weapons delivery systems do not require this same level of optimization in the actual weapon. Therefore, tradeoffs in weight and volume are now possible and give rise to a design space not accessible in the past, while meeting military needs ...

"To develop the sustainable stockpile of the future, the Task Force recommends the immediate initiation of the modernization of the stockpile through the design of the Reliable Replacement Warhead (RRW). This should lead to a family of modern nuclear weapons, designed with greater margin to meet military requirements while incorporating state-of-the-art surety requirements.

"Within these military requirements, the RRW family of weapons will be designed for: 1) production, 2) utilization of readily available materials that do not pose undue hazards to the Complex workforce, and 3) reduced production, maintenance, and disposition costs over the weapon life-cycle.

"The Task Force recommends that a new version of the RRW, incorporating new design concepts and surety features, be initiated on planned five-year cycles. This family of weapons will form the basis of the sustainable stockpile of the future that will replace the current Cold war stockpile. ...

"It is expected that the RRW program will feature pit designs that are simpler to fabricate and thus conducive to low production cost and higher throughput. In addition, reuse of "young" plutonium pits (~~less than 45 years old~~) and of canned secondary assemblies should be evaluated as an element in the design-to-cost equation for the Complex. ..

"An RRW weapon design is responsive to an existing weapon mission, but moves the stockpile toward the sustainable stockpile of the future. Its introduction is made possible by segmenting the current LEPs into discrete "blocks....

"Block 1 would incorporate the current LEP design but would be truncated much sooner than normally planned and transitioned to the block 2 design (RRW-1), which would include some, but probably not all, attributes of the future stockpile. ...

"As soon as practical, block 2 would be transitioned to block 3 (RRW-2), which would incorporate all the attributes of the future stockpile. Implementation of this RRW block change strategy, system by system, would ensure a smooth transition to a sustainable nuclear stockpile, and eventually to a stockpile designed for modern deterrence. The Nuclear Weapons Council has endorsed a plan to apply this strategy to warheads.

"The Task Force endorses the immediate initiation of the modernization of the stockpile through the design of the Reliable Replacement Warhead. This should lead to a family of modern nuclear weapons, designed with greater margin to meet military requirements while incorporating state-of-the-art surety requirements.

"Within these military requirements, the RRW family of weapons will be designed for: 1) production, 2) utilization of readily available materials that do not pose undue hazards to the Complex workforce, and 3) reduced production, maintenance, and disposition costs over the weapon life-cycle.

"The Task Force recommends that a new version of the RRW, incorporating new design concepts and surety features, initiated on planned five-year cycles. This family of weapons will form the basis of the sustainable stockpile of the future.

"Each weapon design incorporated into a block change should be the result of a formal competition between LANL and LLNL, each supported by SNL. The criteria for selection and certification of the winning design should be formally documented and communicated at the beginning of the competition.

"The DoD should work to relax the military characteristics of its nuclear weapons, in order to generate the design space necessary for NNSA to develop high-margin, manufacturable designs for the future stockpile."

Rep. Ellen Tauscher (D-CA) said "I welcome many of the ideas introduced in the SEAB report, which raises important issues that should be part of a larger discussion about the future of our nuclear weapons policy and our weapons complex. I continue to support strategies that will ensure the highest levels of security within our complex, while maintaining our commitment to a reliable and safe arsenal. Although this report lays out a vision for the future, many questions remain unanswered, including the brand-new Reliable Replacement Warhead program and the ultimate size of our nuclear arsenal. I look forward to a frank discussion about the reform and transformation process that should be taken with regard to our nation's nuclear weapons and complex."

In the FY2006 Defense Authorization bill, the Atomic Energy Defense Act (division D of Public Law 107-314) was amended by inserting after section 4204 (50 U.S.C. 2524) the following new section:

``SEC. 4204a. RELIABLE REPLACEMENT WARHEAD PROGRAM.

``(a) Program Required.--The Secretary of Energy shall carry out a program, to be known as the Reliable Replacement Warhead program, which will have the following objectives:

``(1) To increase the reliability, safety, and security of the United States nuclear weapons stockpile.

``(2) To further reduce the likelihood of the resumption of underground nuclear weapons testing.

``(3) To remain consistent with basic design parameters by including, to the maximum extent feasible and consistent with the objective specified in paragraph (2), components that are well understood or are certifiable without the need to resume underground nuclear weapons testing.

``(4) To ensure that the nuclear weapons infrastructure can respond to unforeseen problems, to include the ability to produce replacement warheads that are safer to manufacture, more cost-effective to produce, and less costly to maintain than existing warheads.

``(5) To achieve reductions in the future size of the nuclear weapons stockpile based on increased reliability of the reliable replacement warheads.

``(6) To use the design, certification, and production expertise resident in the nuclear complex to develop reliable replacement components to fulfill current mission requirements of the existing stockpile.

``(7) To serve as a complement to, and potentially a more cost-effective and reliable long-term replacement for, the current Stockpile Life Extension Programs.

``(b) Consultation.--The Secretary of Energy shall carry out the Reliable Replacement Warhead program in consultation with the Secretary of Defense."

(b) Report.--Not later than March 1, 2007, the Secretary of Energy and the Secretary of Defense shall submit to the congressional defense committees a report on the feasibility and implementation of the Reliable Replacement Warhead program required by section 4204a of the Atomic Energy Defense Act, as added by subsection (a). The report shall--

(1) identify existing warheads recommended for replacement by 2035 with an assessment of the weapon performance and safety characteristics of the replacement warheads;

(2) discuss the relationship of the Reliable Replacement Warhead program within the Stockpile Stewardship Program and its impact on the current Stockpile Life Extension Programs;

(3) provide an assessment of the extent to which a successful Reliable Replacement Warhead program could lead to reductions in the nuclear weapons stockpile;

(4) discuss the criteria by which replacement warheads under the Reliable Replacement Warhead program will be designed to maximize the likelihood of not requiring nuclear testing, as well as the circumstances that could lead to a resumption of testing;

(5) provide a description of the infrastructure, including pit production capabilities, required to support the Reliable Replacement Warhead program;

(6) provide a detailed summary of how the funds made available pursuant to the authorizations of appropriations in this Act, and any funds made available in prior years, will be used; and

(7) provide an estimate of the comparative costs of a reliable replacement warhead and the stockpile life extension for the warheads identified in paragraph (1).

(c) Interim Report.--Not later than March 1, 2006, the Secretary of Energy and the Secretary of Defense shall submit to the congressional defense committees an interim report on the matters required to be covered by the report under subsection (b).

(d) Consultation.--The Secretary of Energy and the Secretary of Defense shall prepare the reports required by subsections (b) and (c) in consultation with the Nuclear Weapons Council.

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