

W78 Life Extension Program Description and Work Scope

By 2021, the W78 ICBM warhead will have been deployed for more than 41 years; it is approaching the end of its service life and a Life Extension Program (LEP) must be initiated in FY 2011 to achieve a LEP First Production Unit (FPU) in FY 2021. This LEP would sustain ICBM capability for the foreseeable future. The President's Budget Request included \$26M for the NNSA to begin a Concept Assessment Study (Phase 6.1) in FY 2011.

The 2010 Nuclear Posture Review (NPR) Report to Congress, released in April 2010, recommended *"initiating an LEP for the W78, including the possibility of using the resulting warhead on Sea-Launched Ballistic Missiles to reduce the number of warhead types."* Such an approach, if successful, could provide opportunities to reduce further reserve warheads consistent with the President's long term vision. Moreover, it is timely because the W88 warhead for the sea launched ballistic missile is aging and will also require a LEP study to begin later this decade. Consistent with the NPR, the W78 LEP will use only nuclear components based on previously tested designs, and will not support new military missions or provide for new military capabilities.

Because the NPR was concluded after the FY 2011 budget request was submitted, a description of LEP activities associated with a joint W78/W88 approach was not included in NNSA's budget request documents. Congress was informed about our desired approach not only in the NPR Report but in the Section 1251 (New START Treaty Framework and Nuclear Force Structure Plans) and Section 3113 (NNSA FY 2011 Stockpile Stewardship and Management Plan) Reports also submitted to Congress earlier this year.

The Phase 6.1 study effort, to begin by February 2011, would explore the path forward for life extending the W78, including the possibility of a joint W78/W88 approach, and explore as well:

- W78 Military Characteristics (MCs) including military requirements for a system that could be fielded with both the Mk12A and Mk5 reentry systems;
- Safety and use control themes and test, qualification, and surveillance strategies that could be used to improve system surety and reliability;
- Required system attributes such as performance, reliability, and ability to certify, manufacture and field; and
- Technology maturation activities that would help establish the feasibility of options and enable subsequent detailed cost estimates.

The planned approach represents an important opportunity to extend W78 service life, incorporate modern safety, security, and control features and, if the W78 LEP is also able to address the requirements of the W88, gain substantial efficiencies and cost reduction. In fact, the original MCs of the W78 (published in 1974) defined a requirement, yet technologically unmet, for a nuclear warhead for both the Minuteman III and the Trident II delivery systems. This was not feasible then but, in all likelihood, is feasible today.

Once the 6.1 Study is complete (planned for the end of FY 2011), a more informed LEP strategy can be realized. At that point, the NWC may recommend proceeding to a combined Feasibility Study and Option Down Select Study and a Design Definition and Cost Study (Phase 6.2/6.2A).

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