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NATIONAL NUCLEAR SECURITY ADMINISTRATION  
OFFICE OF DEFENSE PROGRAMS



# W78/88-1 Life Extension Program (LEP) Pit Decision

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
1 <sup>st</sup> Review Date: <u>5/27/2022</u>	DETERMINATION (CIRCLE NUMBER(S)) <input checked="" type="radio"/> 1. CLASSIFICATION RETAINED <input type="radio"/> 2. CLASSIFICATION CHANGED TO: <input type="radio"/> 3. CONTAINS NO DOE CLASSIFIED INFO <input type="radio"/> 4. COORDINATE WITH: <input type="radio"/> 5. CLASSIFICATION CANCELED <input checked="" type="radio"/> 6. CLASSIFIED INFO BRACKETED <input type="radio"/> 7. OTHER (SPECIFY):
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2 <sup>nd</sup> Review Date: <u>6/9/2022</u>	
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~~Classified By: G. Lybrand, NA 191.2  
Derived From: CG-W-5, October 1995, DOE OC~~

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# Briefing Outline



- **Bottom Line Up Front**
- **Program Requirements**
- **Analysis Summary**
- **Conclusions**
- **Back-Up Slides**
  - **Analysis of Alternatives (Conventional High Explosive vs. Insensitive High Explosive pit types)**
    - **Scoring Criteria: Security, Safety, Certification, Qualification, Sustainment/Surveillance Cost, NEP Interoperability, Quantity/Availability, Reuse/Remanufacture Cost, Capability, and History**
  - **Metric Results**
  - **Non-Scoring Criteria: Characteristics/Features**
  - **Design**



# Bottom Line Up Front (BLUF)



- A key discriminator in selecting a pit lies in managing certification risk.
    - Certification of a CHE pit in an IHE implosion system without underground testing carries unknown risk.
- [Redacted]**
- Metrics have been developed to evaluate alternatives.
    - The W87 meets the warfighter requirements for the interoperable warhead.
    - The W87 pit is best aligned with modernization of the NNSA infrastructure.
    - W87 Pit choice carries risk, but more certainty.
    - Joint POG concurs with the analysis and NNSA recommendation.
  - Immediate down selection of a pit enables NNSA and the Services to most efficiently use their resources.
  - NNSA is working with LANL and LLNL to prepare for down selection of NEP design in December 2013

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**The NNSA choice is the W87 pit.**



# Program Requirements

## June 18, 2012 NWC Letter



- **Threshold Requirements**
  - Nuclear Explosive Package interoperability with Mk21 and Mk5 aeroshells
  - Nonnuclear components are to be adaptable to Mk21 and Mk5 aeroshells
  - IHE
  - Detonator Safing
  - Container-Based Protection
- **Objective Requirements**
  - DOE  
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  - **Multipoint Safety**
- Implemented through a system-of-systems evaluation of options
- Requirements that significantly increase program cost and/or risk will be reevaluated for benefit, feasibility, and affordability