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Title: Los Alamos National Laboratory Update - W78 Program Status

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Abstract

In support of the ICBM Program Officer Group Meeting 09-01, current status for the Los Alamos National Laboratory portion of the W78 program is presented. Topics include production efforts in support of the stockpile and current issues on the W78 program.

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Los Alamos National Laboratory Update - W78 Program Status

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February 2009

This document deemed Unclassified by
Randy Drake, S-1

(ADC)

Agenda

- **Assessment Statement**
- **Production Efforts**
- **System Issues**
- **Summary**

Assessment Statement

- **The W78/Mk12A continues to meet Military Characteristics (MCs) requirements**
 - Trinity exception
- **Warhead reliability is assessed to be within required specification**
- **There is no current requirement to conduct nuclear testing to maintain certification for the W78**

Recent or Imminent Production Efforts in Support of the Stockpile

- LF7 A and B
- OST mock pits
- Wire and Wedge Wire parts
- Bar
- JTA 611
- JTA 518

W78 Reservoirs

- **LF7 (422067)**
 - Last LF7s will be removed in 2014
- **LF7A (3K0090)**
 - Stockpile implementation started in 2008
- **LF7B (3K0156)**
 - Improved piston-bore sealing, Integral positive indicator (removes T558A use), New forging (vendor)
 - Design CER: March 2009
 - LTG/JTG: September 2009
 - KCP WR shipment: October 2009
 - SRS WR shipment: March 2010

Other Production Information

- **Over 400 sets of wire (3K0143) and wedge wires (3K0142) delivered in 2008**
 - Will support life of program
- **Eight 3K0120-00 delivered in 2008 and five 3K0120-01s in final production at KCP**
- **Mock Bars (3K0121) delivered in 2007/2008 should support life of program**

JTA Production Status

- JTA 611 completed
- JTA 518 to be built and delivered this year
 - Extended range
 - Use of new 3K0120 OST mock
 - Working out product definition conversion at Y-12 and Pantex

Current Issues

- **Polymeric SFI 98-16-W78-02 still open**
 - Details to be briefed in the S&R subgroup meeting
- **JLES efforts ongoing and briefed separately**
- **CSA**
- **Hydro 3618**

CSA Status

- LANL continues modeling and analysis efforts with respect to lifetime estimates
- To date, based on surveillance data and analysis results there are no CSA performance concerns
 - LANL position has been documented in the AAR and associated documentation

Recent CSA Analysis Activities

- **Historical review of Fogbank purification and recent changes in the process**
- **Benchtop Fogbank decomposition and reconstitution studies underway**
- **Through analysis and particle size data, a outgassing correlation has been established**
 - Free radical impurity in high outgassing
 - Diffraction studies indicate a correlation between morphology and outgassing
- **Intrinsic radiation studies provide initial conclusion that radiation enhances but does not solely control decomposition**

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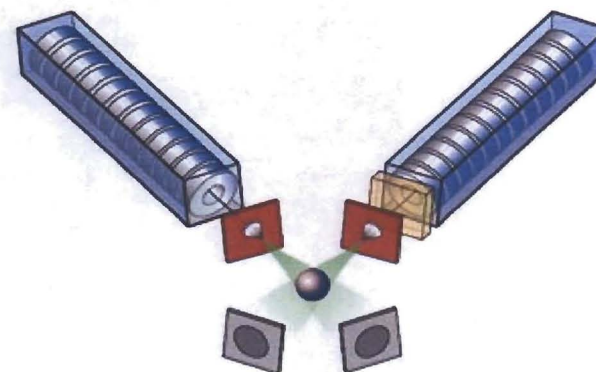
Hydro Test Update



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Hydro 3618 Status

- **Objective: Define 3-D hydrodynamic performance baseline**
- **Remaining Milestones:**
 - Device build, completed December 2008
 - As-built review, completed January 2009
 - Shot Execution, FY09
- **Status/Risks:**
 - Test device shelf-life:
 - Use-by date December 2009
 - DARHT facility approval:
 - Second axis uncertainty



•DARHT: Produces two simultaneous x-ray images. X-ray flashes (the green rays) will be generated when high-energy electron pulses from each accelerator slam into tungsten targets (red).

Summary

- The W78 continues to meet MC requirements
- Successful accomplishment of production goals for the program
- Efforts to better characterize CSA performance continue
- Important hydro experiment 3618 is built awaiting firing at DARHT