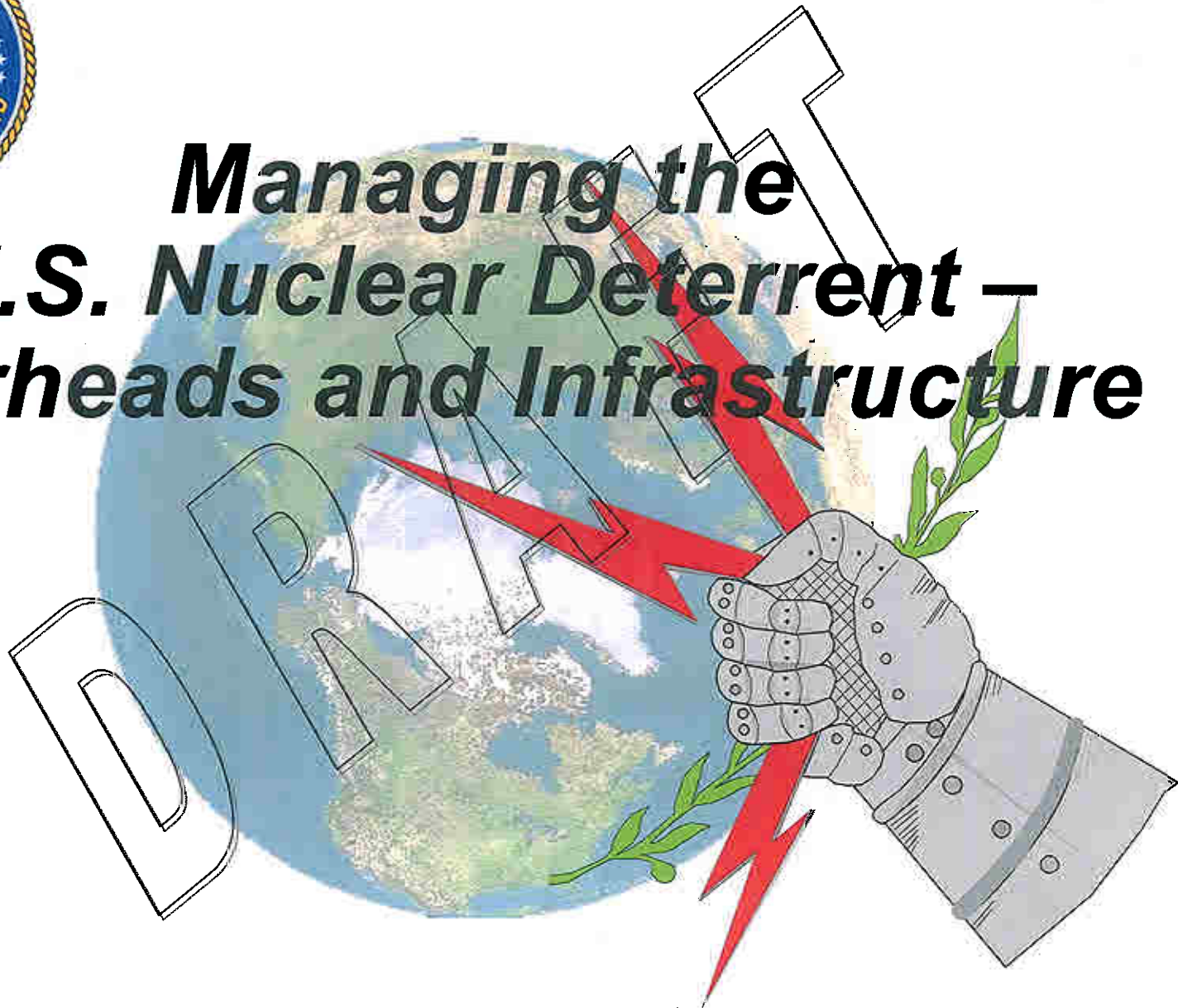




Managing the U.S. Nuclear Deterrent – Warheads and Infrastructure



UNCLASSIFIED



Do We Need Nuclear Weapons?



President Barack Obama
April 5, 2009
Prague, Czech Republic

Other nations possess weapons that can threaten our way of life.

“As long as these weapons exist, the United States will maintain a safe, secure and effective arsenal to deter any adversary, and guarantee that defense to our allies . . .”

Keeps allies from developing their own nuclear warheads and risking proliferation of weapons and technologies.

U.S. nuclear stockpile is 25+ years old with 1960's - 1980's technology.

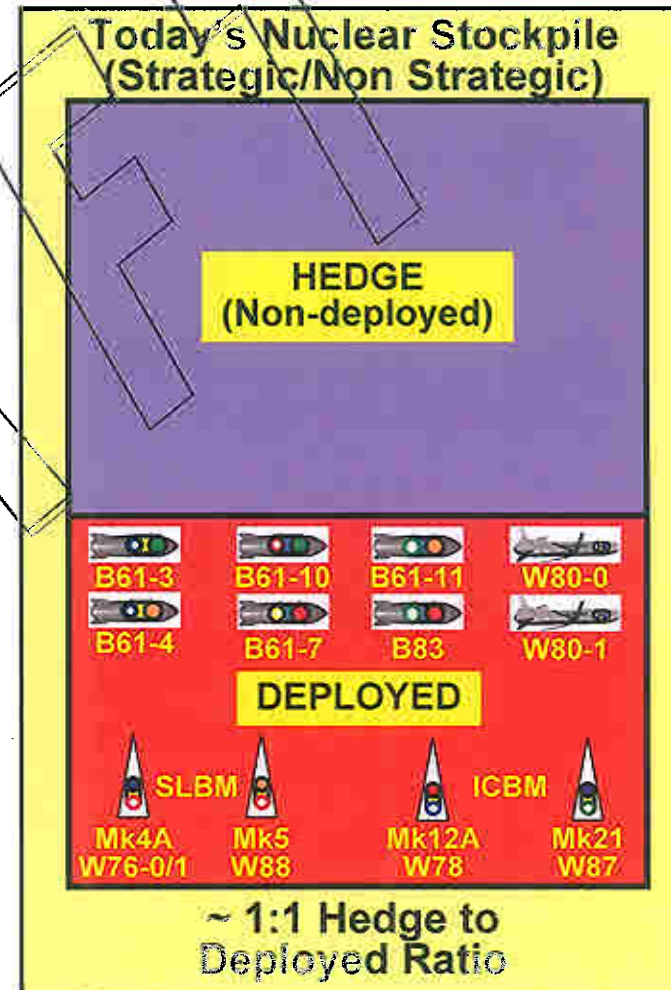
The need to sustain U.S. nuclear weapons is not in conflict with the goal to eventually eliminate them



Current Stockpile Strategy

- **U.S. “Lead and Hedge Policy” established by Clinton Administration**
 - Evolve to smaller deployed stockpile while hedging against risks
- **U.S. retains non-deployed weapons to hedge against risks:**
 - Technical “surprise”
 - Warhead or platform failure
 - Geopolitical “surprise”
 - Change in global security environment

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Stockpile Management:

is NOT ...

Seeking new military capabilities

- Current nuclear capabilities are sufficient

is NOT ...

Making nuclear weapons more "usable"

- They remain weapons of last resort
- They remain our ultimate deterrent

Is NOT ...

Keeping nuclear weapons indefinitely

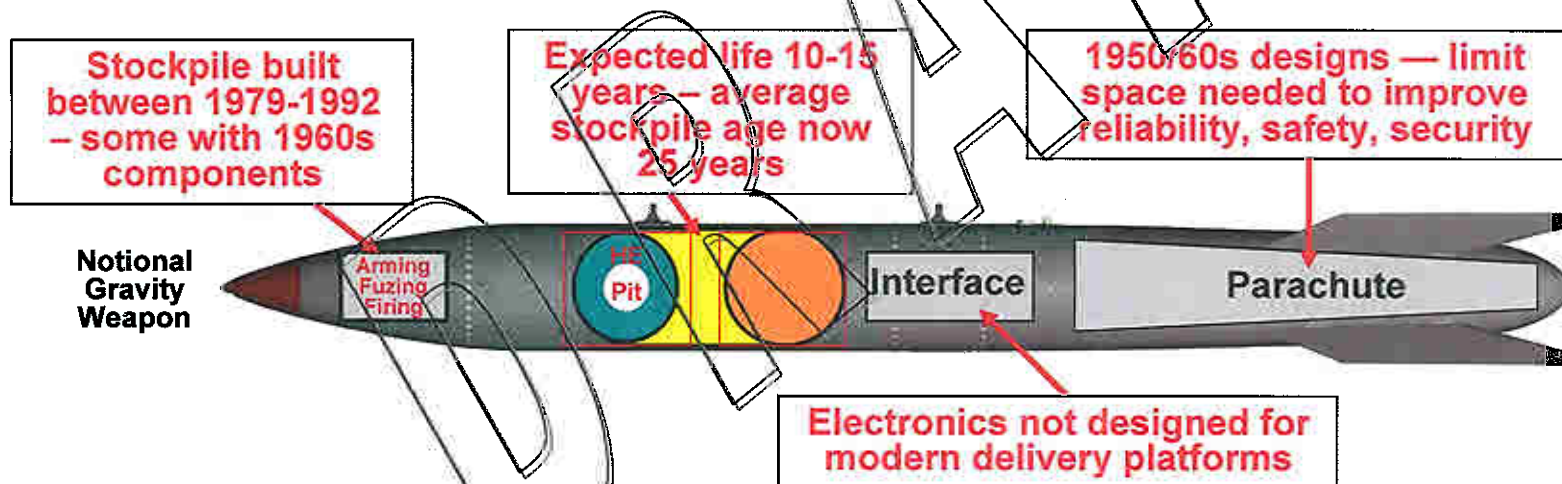
- Warhead and infrastructure management enable reductions in the U.S. total stockpile



Challenges To Managing Our Nuclear Warheads

Warheads

- **Legacy warhead designs constrain options**
 - Designed to be replaced instead of repaired
 - Maximized explosive power (yield) in available space
- **Today's requirements can't be fully implemented in current weapons**
 - Most lack physical space needed to add required reliability, safety, and security features

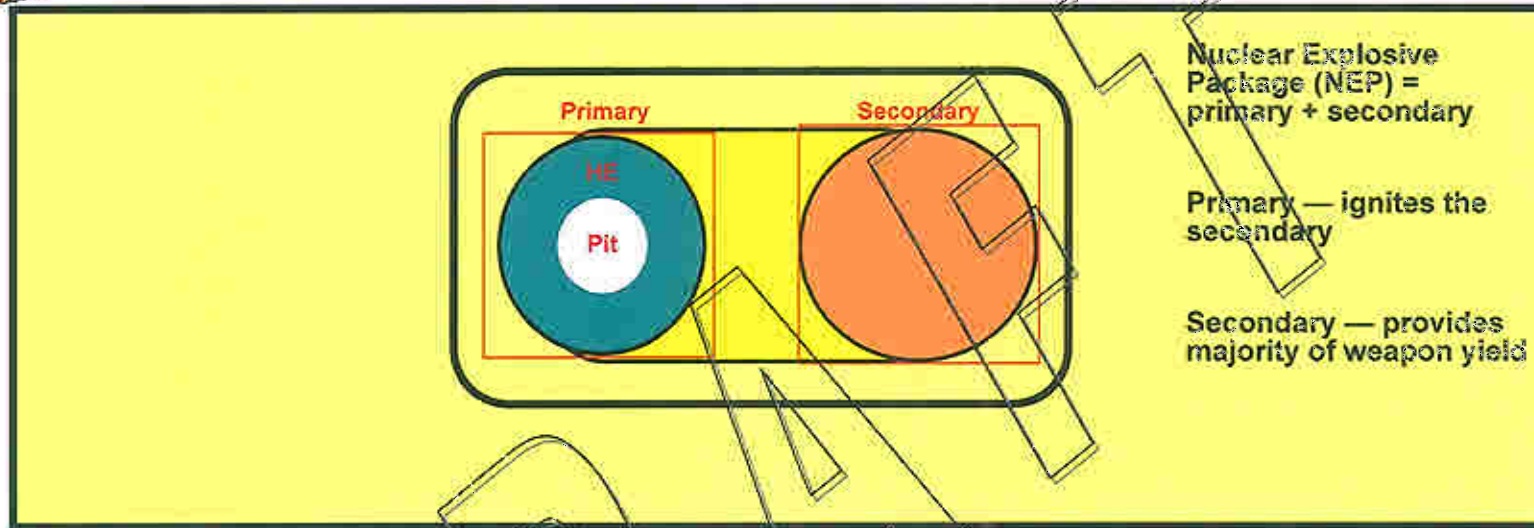


“many (surveillance) findings identify problems...original design processes were not sufficiently robust”

Bi-partisan Congressional Commission on the Strategic Posture of the U.S., 2009



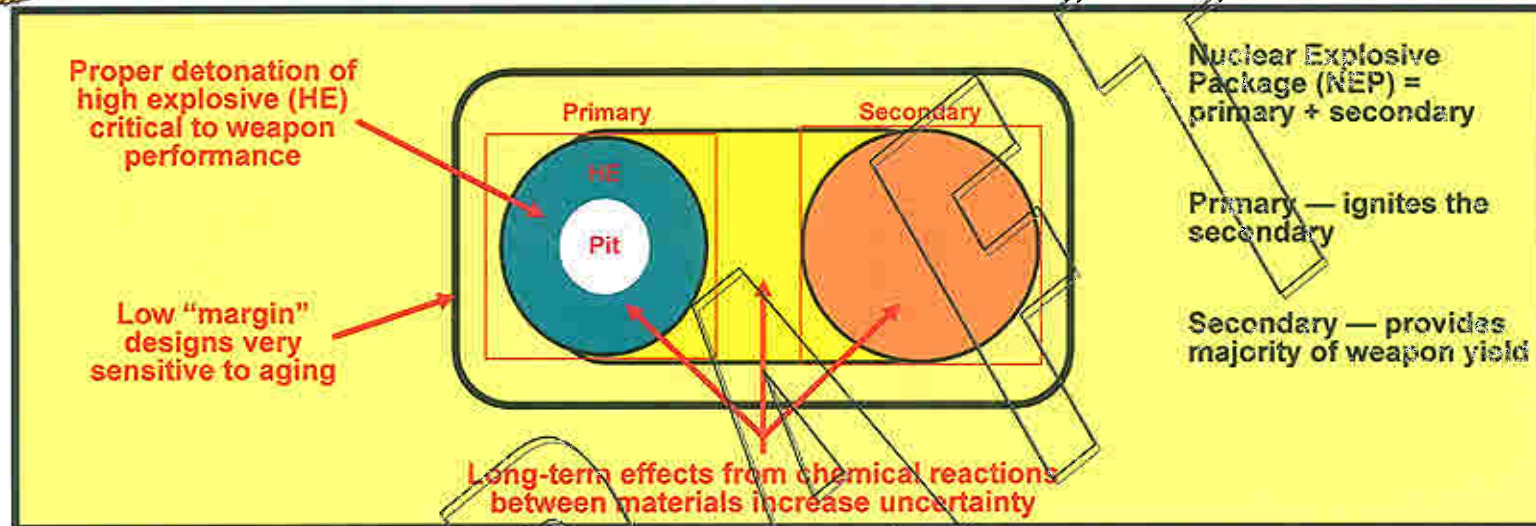
Why Is Increasing Confidence In Reliability Necessary?



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Why Is Increasing Confidence In Reliability Necessary?



Confidence in reliability of aging stockpile is decreasing

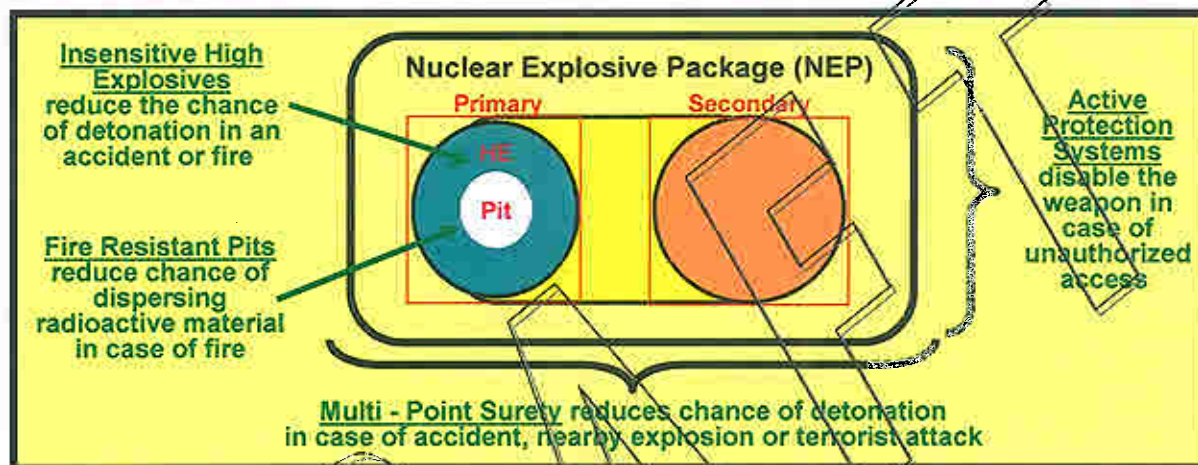
- Decreasing long-term confidence in reliability as weapons are kept beyond design lives
 - Warheads acting as chemistry experiments as they age
- Limited ability to improve lifespan or reliability through repair actions

Improving reliability:

- Ensures stockpile will operate as designed if required by the President
- Enables continued/permanent moratorium on nuclear testing and CTBT ratification with appropriate Safeguards
- Enables reduction in weapons kept in case of a warhead problem (technical hedge)
- Assures allies they do not need their own weapons



Why Is Increasing Warhead Safety And Security Necessary?



Current stockpile not designed to address potential for nuclear terrorism

- Small percent of stockpile has internal disablement features to prevent unauthorized use
- All weapons lack modern surety features to further reduce the possibility of nuclear yield in an accident or terrorist attack

Improving safety and security:

- Maintains allies confidence in weapons stored overseas
- Renders weapon unusable against potential nuclear terrorists
- Ensures no nuclear yield in case of accident or terrorist attack

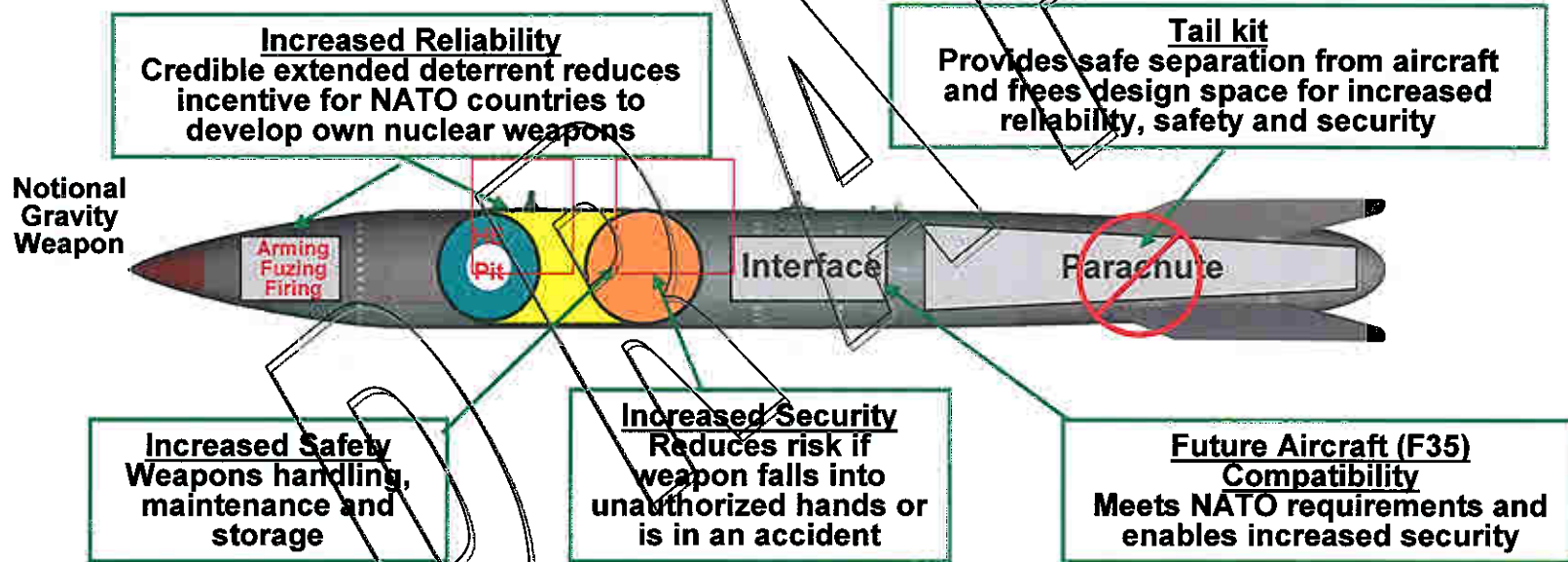
“Acquisition of nuclear weapons...in defense of Muslims is a religious duty.”

Osama bin Laden, 1998



First Opportunity To Improve The Reliability, Safety, And Security Of The B61

- Fund B61 life extension now to continue to keep B2 viable and sustain a credible NATO extended deterrent commitment



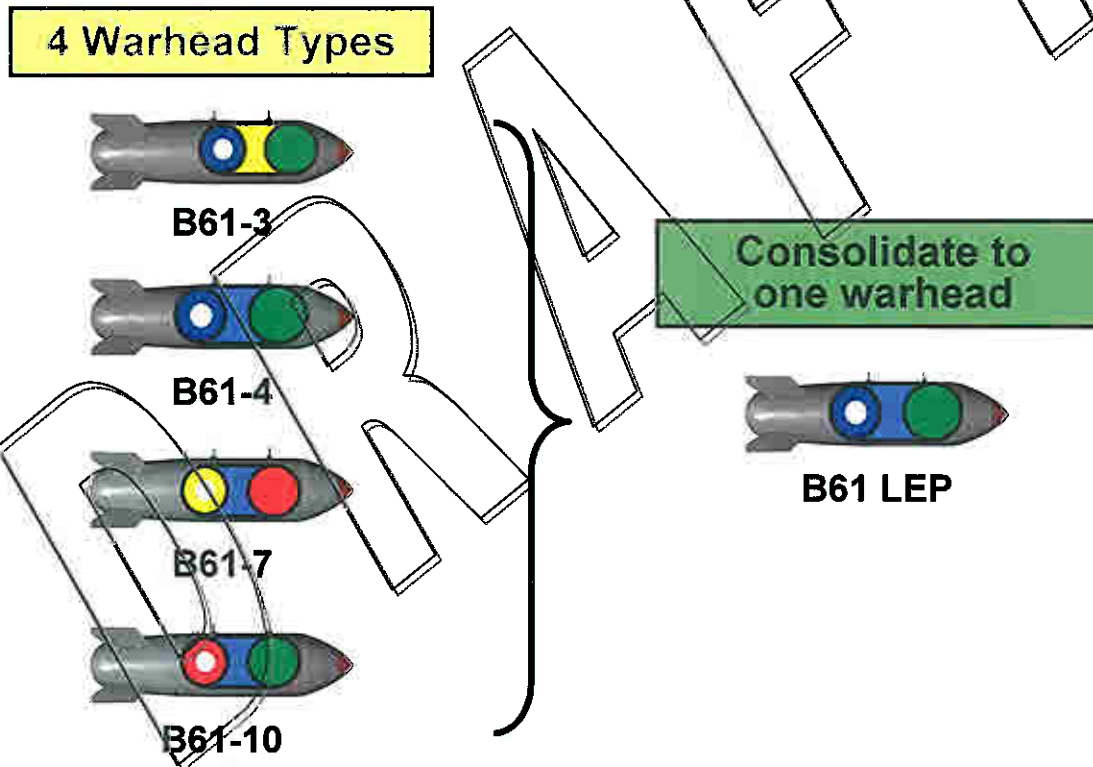
First opportunity to significantly increase the reliability, safety, and security of the stockpile



Consolidation Opportunity

Consolidation:

- Reduces stockpile management costs
- Reduces hedge stockpile
- Reduces demand on infrastructure



Consolidating four B61 variants reduces stockpile management requirements and significantly shrinks future sustainment costs

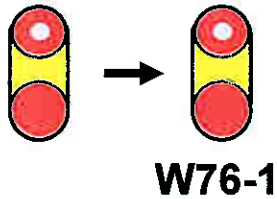


Range Of Options To Manage The Stockpile

- Independent assessments indicate three stockpile management options

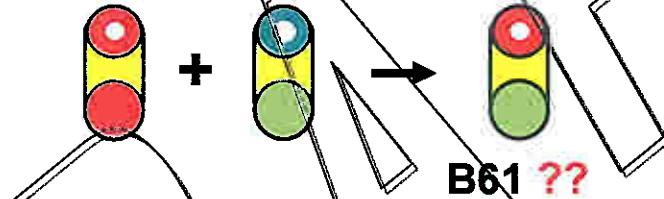
Refurbish:

Rebuild the warhead nuclear components as close to the original as possible



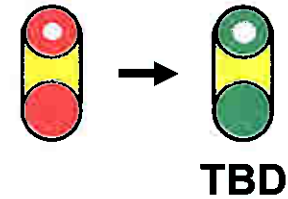
Reuse:

Mix and match the best nuclear components of different warheads – may have to remanufacture parts



Replace:

Manufacture new nuclear components similar to those previously nuclear tested



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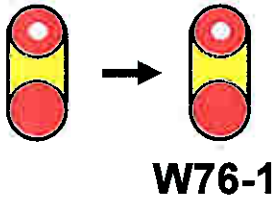


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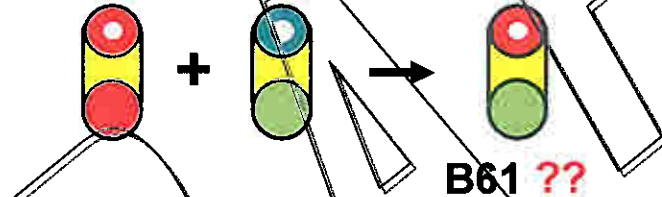
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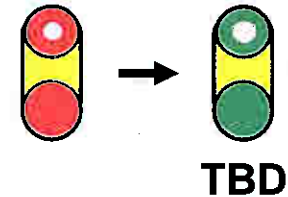
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Assessments show:

- Continuing to refurbish weapons unsustainable – doesn't meet requirements
- Mix of reuse and replace meet requirements
- Reuse/replace enables warhead consolidation

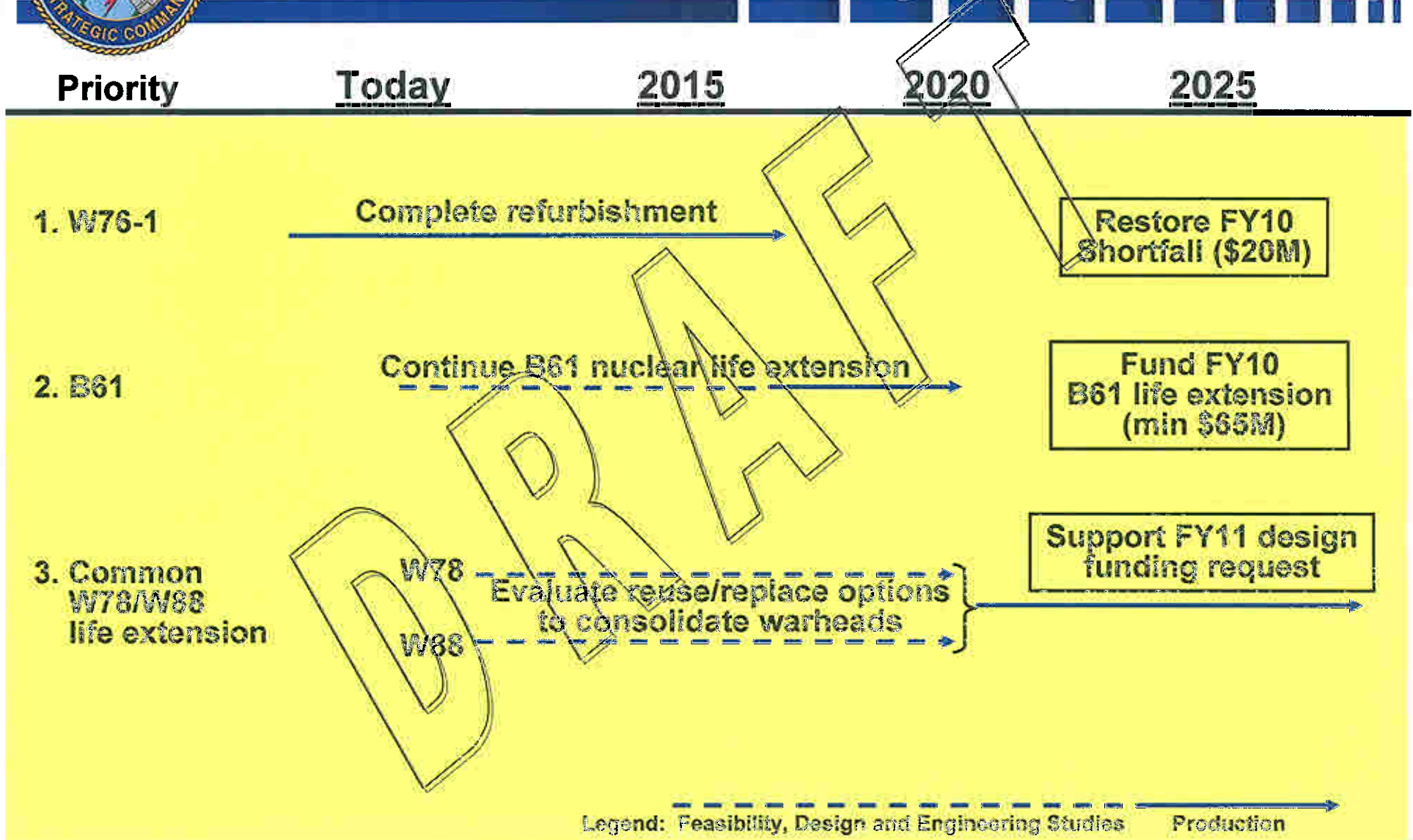
Approach	Increased Reliability	Increased Security	Increased Safety
Refurbish			
Reuse			
Replace			

“... decision on which approach is best should be made on a case by case basis”

Bi-partisan Congressional Commission on the Strategic Posture of the U.S., 2009



A Path To Increased Reliability, Safety And Security





Infrastructure

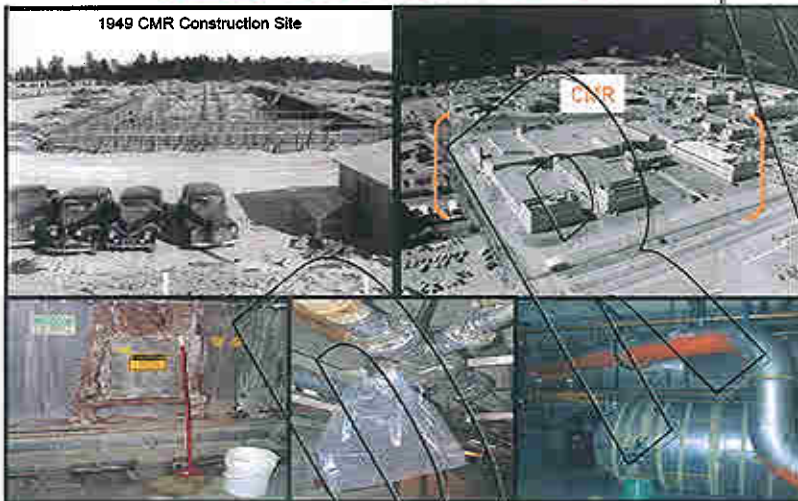
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Challenges To Sustaining Our Nuclear Weapons Infrastructure

- **1940/50's production infrastructure does not meet stockpile management needs**
 - Unable to reproduce many components of current weapons
 - Experienced personnel leaving – challenge to prepare next generation of nuclear experts
- **Need to replace critical plutonium and uranium facilities**
 - CMRR-NF* and UPF** needed to sustain stockpile regardless of size
 - Current facilities about 60 years old – operating on safety waivers

1952 CMR Los Alamos



Corroded Equipment

Leaking Pipes

Leaking Duct Work

1943 Building 9212 Oak Ridge



Deteriorating Duct Work

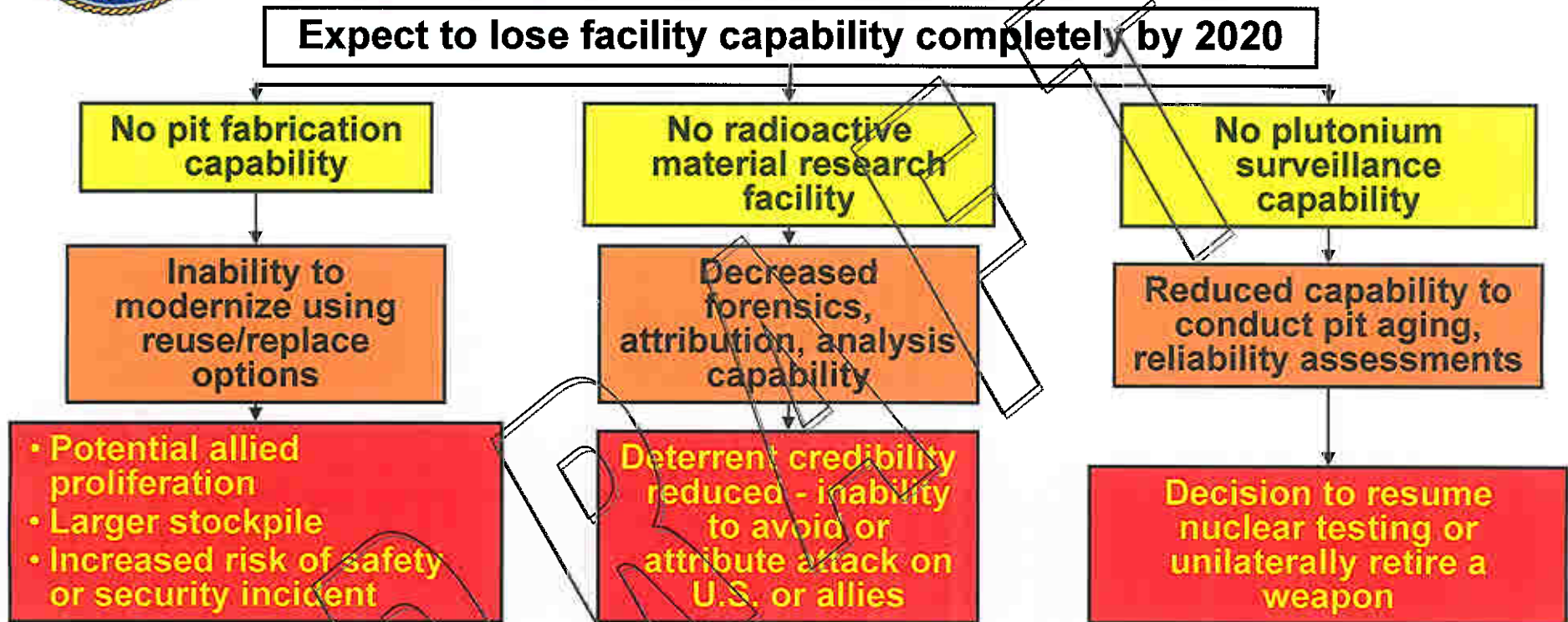
Corroding Equipment

“Existing facilities are genuinely decrepit and are maintained in a safe and secure manner only at high cost.”

Bi-partisan Congressional Commission on the Strategic Posture of the U.S., 2009



Infrastructure Example: Implications Of Failing To Modernize Plutonium Facilities



**“The physical infrastructure is in serious need of transformation . . .
... it lacks the needed funding.”**

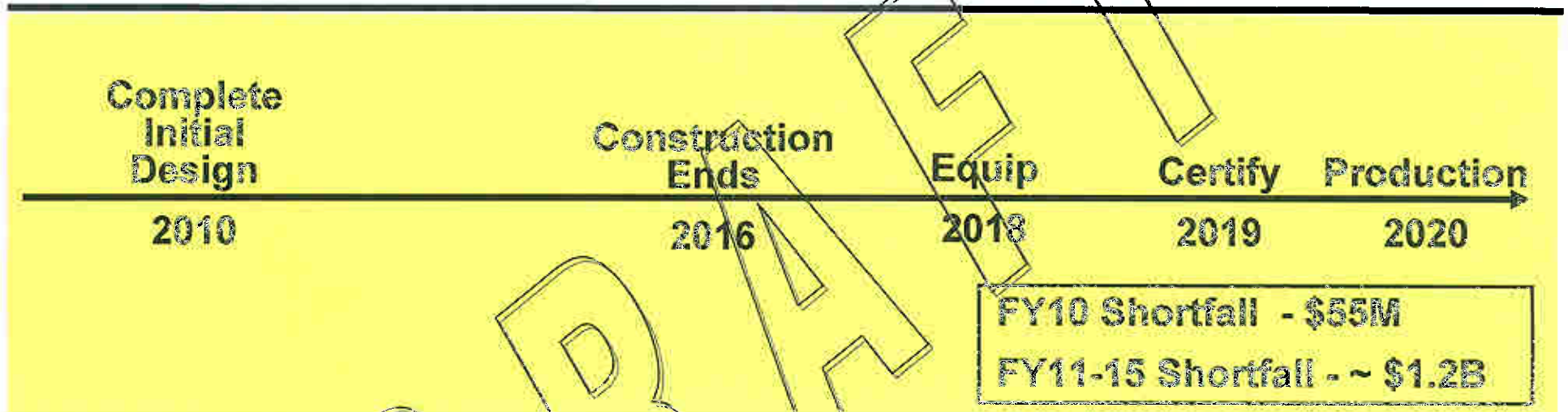
**“... the intellectual infrastructure is in serious trouble
—perhaps more so than the physical complex itself.”**

Bi-partisan Congressional Commission on the Strategic Posture of the U.S., 2009

CMRR-NF funding needed now to meet 2020 requirement



Path To CMRR-NF Modernization



- Nuclear facility construction timelines: 10 years
- Funding required in FY10 to avoid FY20 capability gap



Stockpile Management: Actions Needed Now

- **W76:**
 - Increase LEP funding for full-rate production
- **B61:**
 - Approve full funding for B61 nuclear life extension
 - Support B61 tailkit modification program
- **CMRR-NF:**
 - Increase funding to provide initial operating capability NLT ~2020
- **Surveillance:**
 - Increase DOE funding

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CMRR-NF: Chemistry and Metallurgy Research Replacement – Nuclear Facility

