

Qualitative Level of Proliferation Concern

Cold War (20,000)

START I (10,000)

START II (5,000 \pm 1500)

NAS (1,500)

Zero (0)

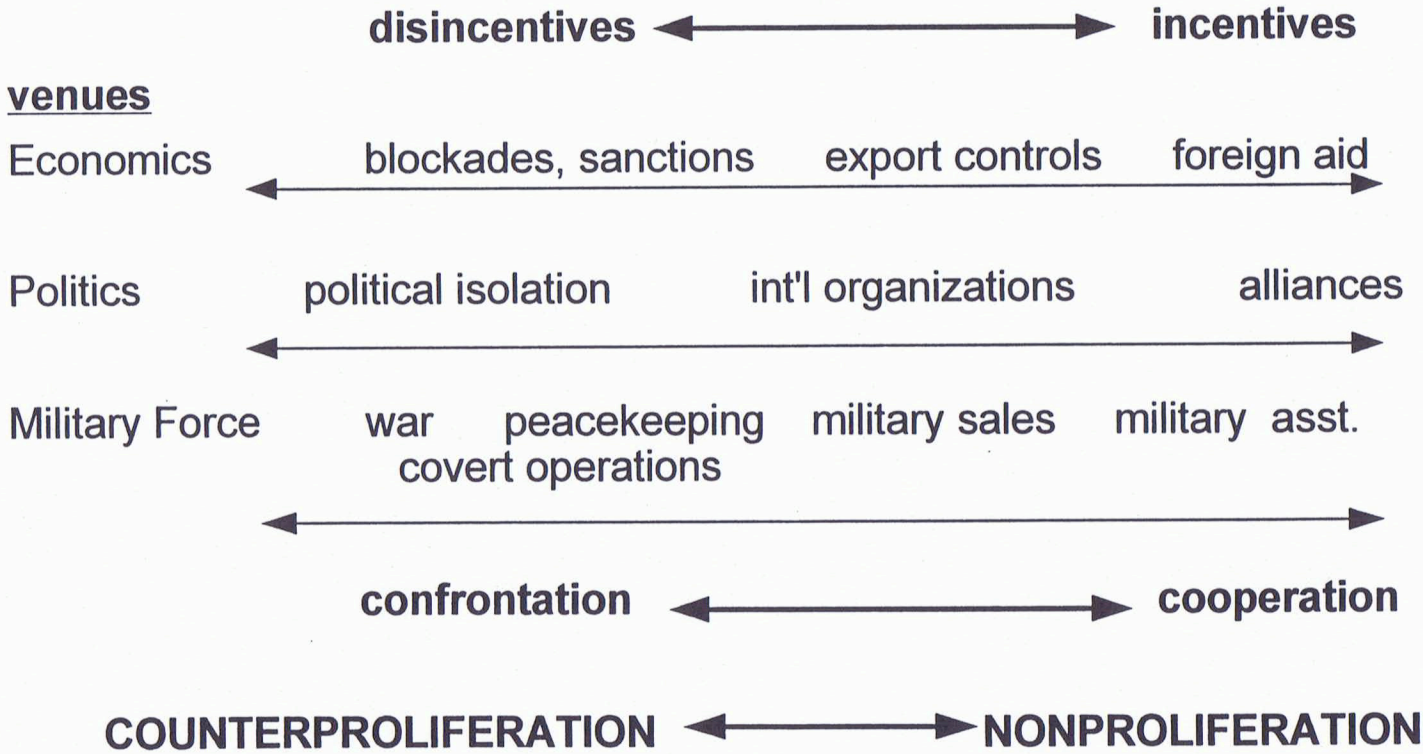


In the land of the blind, the one-eyed man is king.

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Options across the Nonproliferation -- Counterproliferation Spectrum



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Activities Which Accomplish Objectives

Reduce Demand

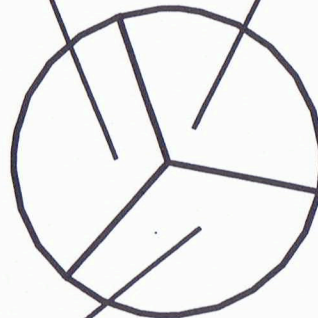
- International agreements
- Regional security agreements
- Transparency and confidence building
- Responsible behavior by nuclear weapon states
- Penalties for violating international norms
- Minimizing utility

Control Supply

- International Export Control Regimes
- IAEA Safeguards
- Elimination of sources of supply
- Monitoring and enforcement of export controls or embargoes
- Responsible behavior by nuclear weapon states

Mitigate Consequences

- Sanctions and embargoes
- Military activities
- Covert operations



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Goals of Proliferation Controls (non → counter)

- REMOVE MOTIVATION FOR POSSESSION OF NUCLEAR WEAPONS
- INTERDICT DEVELOPMENT AND ACQUISITION
- DETER EMPLOYMENT OF KNOWN OR SUSPECTED STOCKPILES OF NUCLEAR WEAPONS
- ELIMINATE INFRASTRUCTURE BY PERSUASION, INTERNATIONAL SANCTIONS (e.g., Res 687)
- PROACTIVELY DESTROY FACILITIES (e.g., Osirak)

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Secondary Impacts of Nonproliferation Initiatives

- o NPT//NPT Extension Conference (1995):
 - Mandates for movement toward global reductions
 - Mandate for a CTB by 1996
 - Mandate for "FISS_BAN"
 - Mandate for Negative Security Assurances
 - Improved Safeguards
- o Negotiations on control on fissile materials:
 - Codify in-place current US and Russian practices
 - Inspection regimes and transparency
 - Possible attempts to restrict tritium production
- o Export Controls
 - Heightened concern over "dual use" systems and commodities

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Issues on the Nonproliferation platter

- Control over the nuclear arsenal (and direction) of the FSU
- North Korea--good deal? bad deal?
- CTBT--linkage to NPT formalized during EXCON
- China, France--steadfastly continuing to test
- The Israeli nuclear arsenal
- The nuclear relationship between India and Pakistan--imminent missile deployment (M11 vs Prithvi)?
- Iran--a new reactor (Bushehr) for Israel to target?

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SURVEY OF WEAPONS DEVELOPMENT AND TECHNOLOGY

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SESSION XVII

- STOCKPILE STEWARDSHIP
- SUMMARY/DISCUSSION

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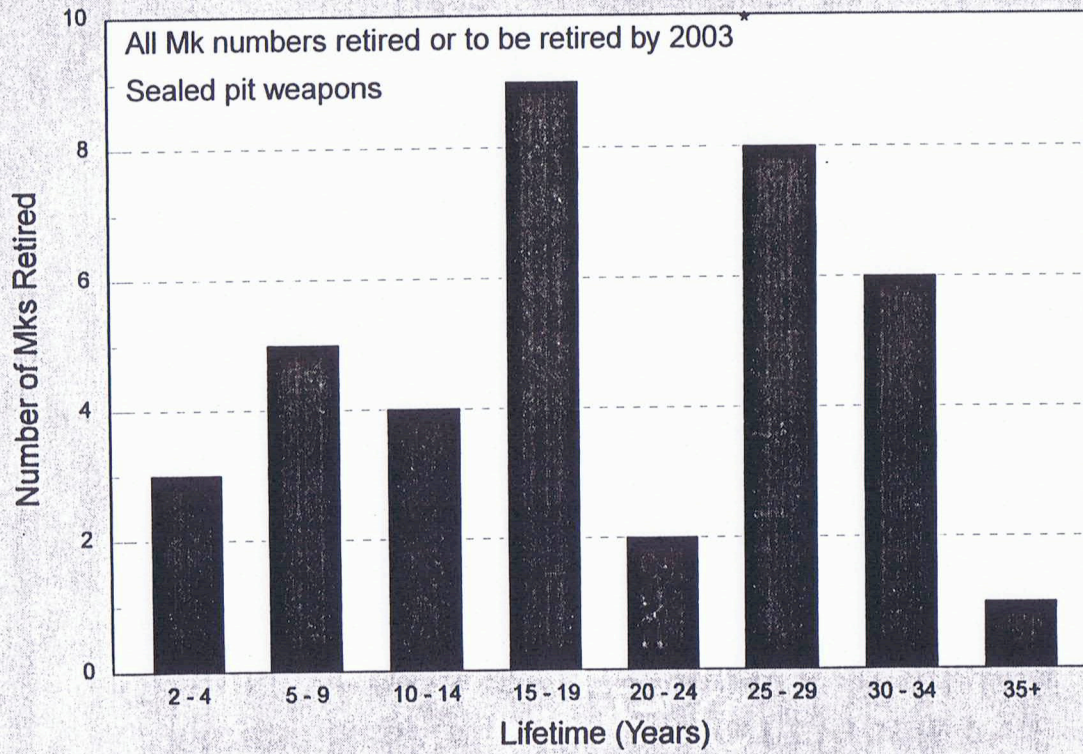
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Mk Number Lifetime



* As projected by P&PD 94-0

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Weapon Histories Lead to a New Question

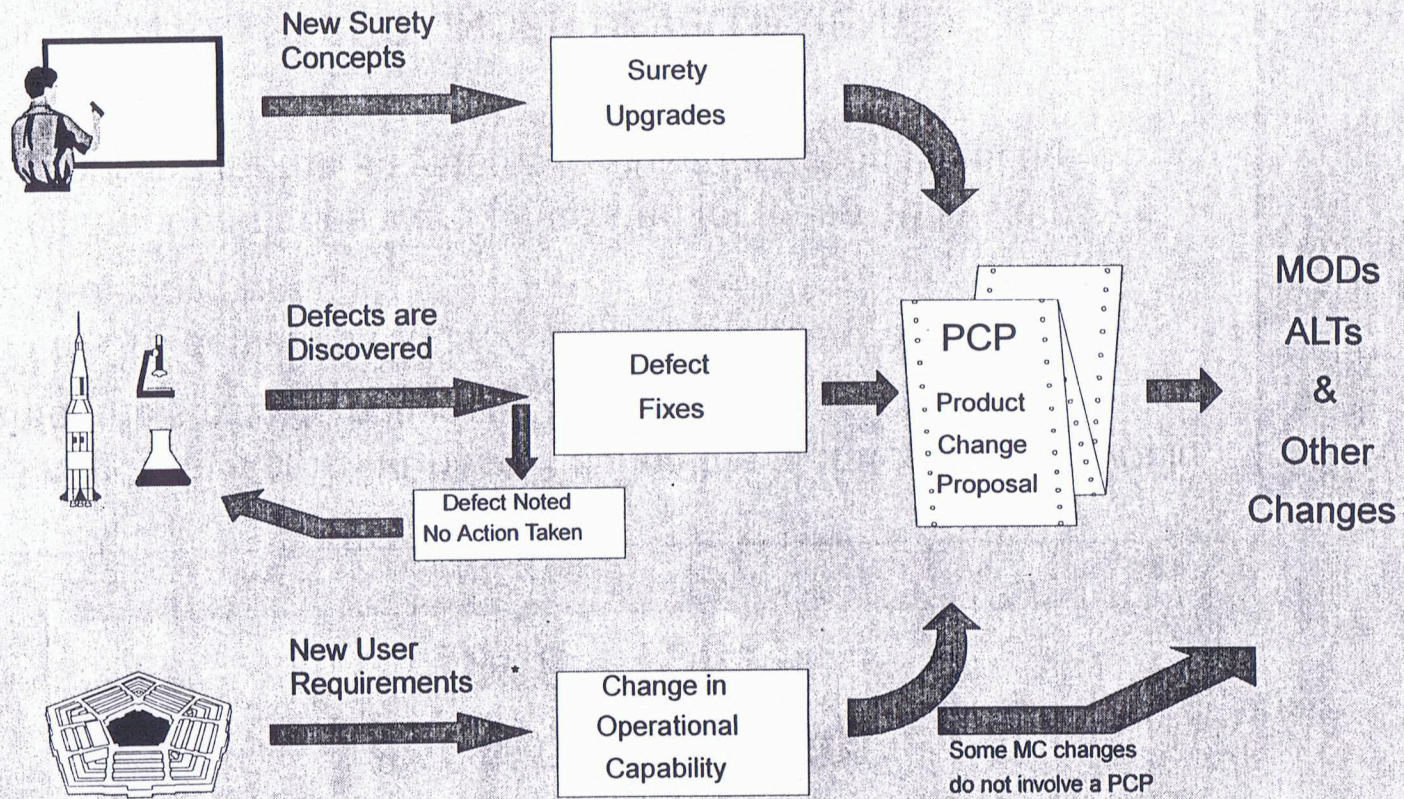
- "What is required to sustain a weapon while it is in the stockpile?"
 - The DOE has active programs to:
 - Upgrade a weapon's surety
 - Maintain a weapon's reliability
 - Incorporate new operational features into a weapon

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How Changes Are Made To Stockpiled Weapons



* New user requirements may result in new weapon development

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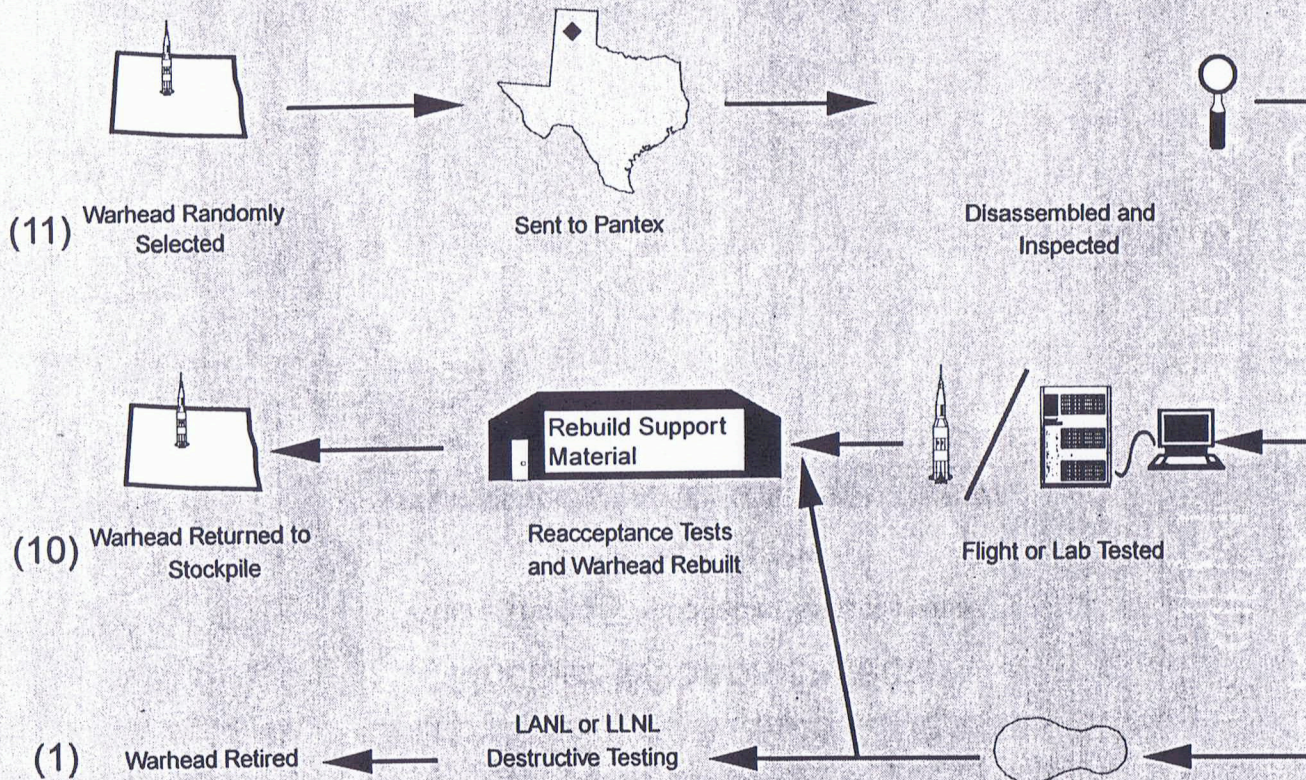
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The Stockpile Evaluation Process



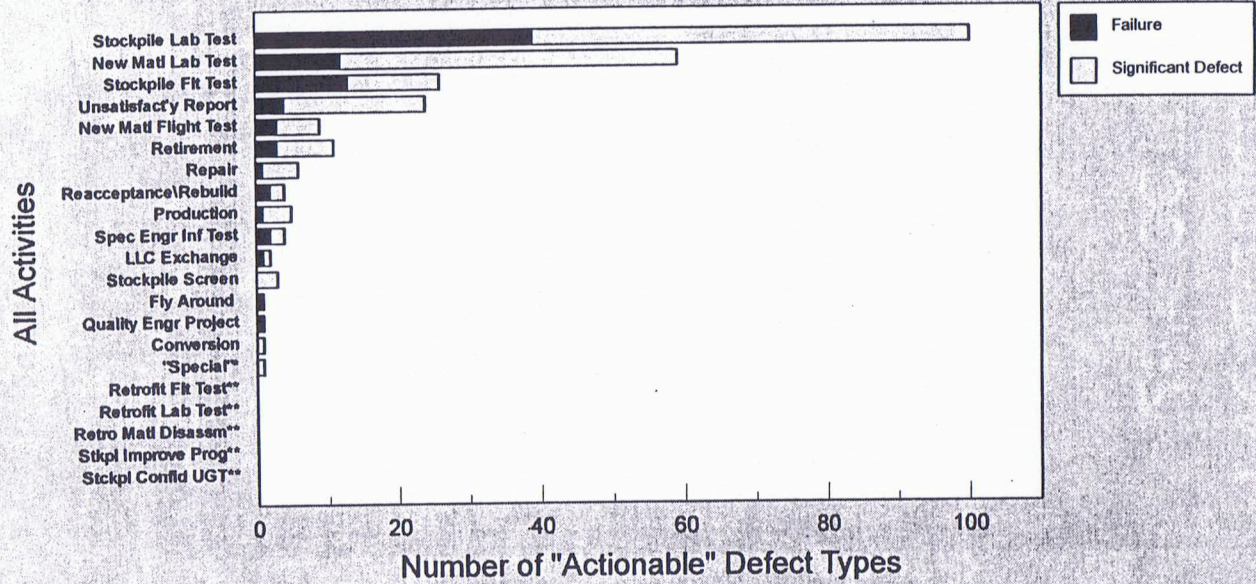
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Nuclear Weapon Defects

Where The 257 "Actionable" Defect Types
Were First Discovered



* Designation in the Historical Summary
 ** No "Actionable" Defect Types first discovered

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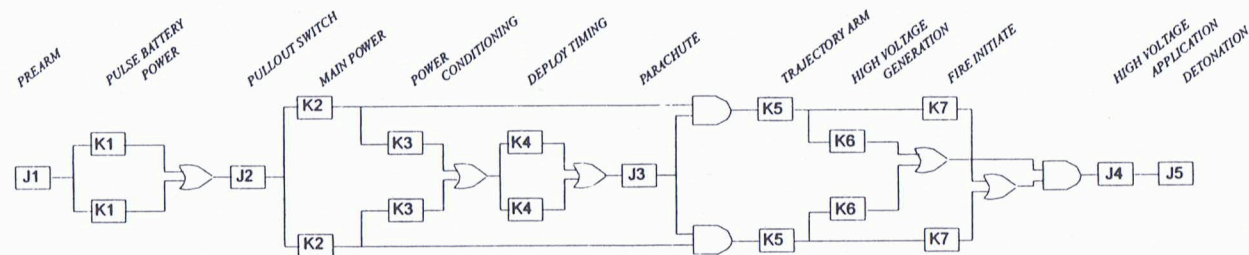
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Reliability Impact Assessed For All Defects

- CONTINUAL PROCESS TO DEFINE WEAPON RELIABILITY -

- Reliability assessment first established during weapon development
 - _ Reliability model developed



- _ Sandia + Physics Lab inputs
- Reliability impact assessed during formal defect investigation (SFI)
 - _ Data collected from relevant sources
 - _ Added to existing data base
 - _ New assessment made (some defects assessed with no reliability impact)



PCP Includes MOD & ALT

- Product Change Proposal (PCP)
 - Initiates & authorizes any accountable change to a War-Reserve (WR) weapon & its associated gear or non-WR units
 - Range in importance from Change in Wrench
(H1324 for the W71)
 - Normally includes MOD & ALT
- Modification Number (MOD)
 - Assigned to any change to a WR weapon that alters its operational capability
- Alteration Number (ALT)
 - Assigned to any accountable change to a WR weapon & its associated gear or non-WR units

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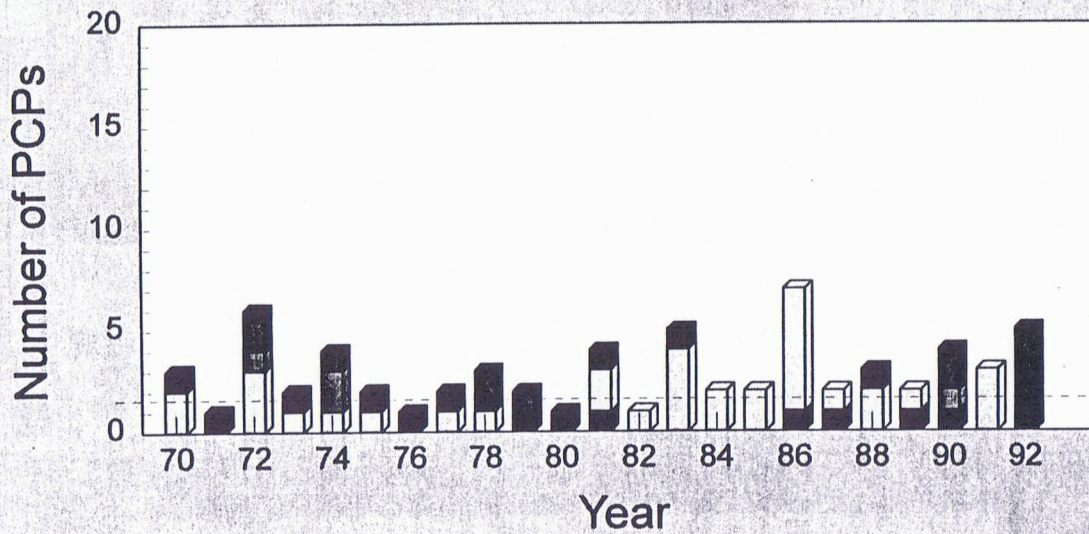
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'Major' PCPs (1970 - 1993)

67 PCPs by Type of Change



■ Safety (19%) □ Reliability (51%)
■ Command & Control (6%) ■ Operational & Maintenance (24%)

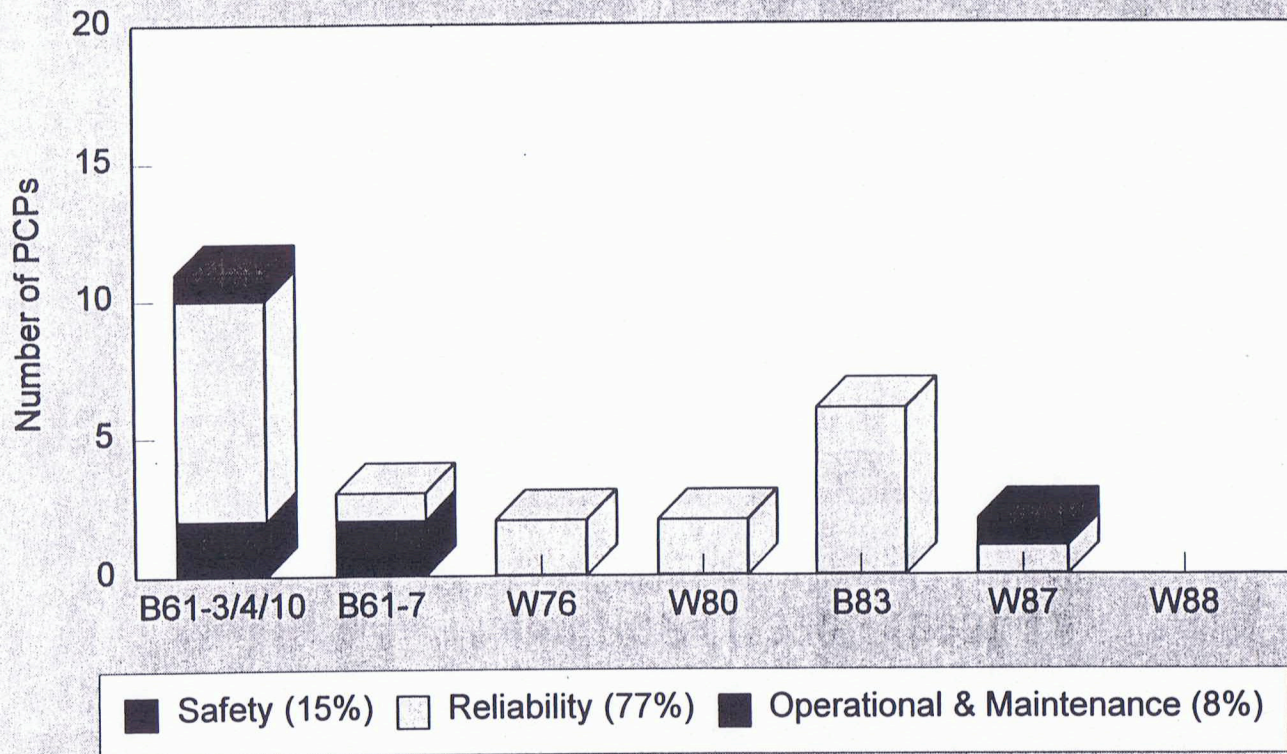
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Stockpile Weapons in 2004

"Major" (26) PCPs by Type of Change



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Future Workload Issues

historical data suggest that:

- 1 "actionable" defect will be discovered each year.
- About 2 PCPs will be approved each year - 1 of these will constitute a major change.

DOD

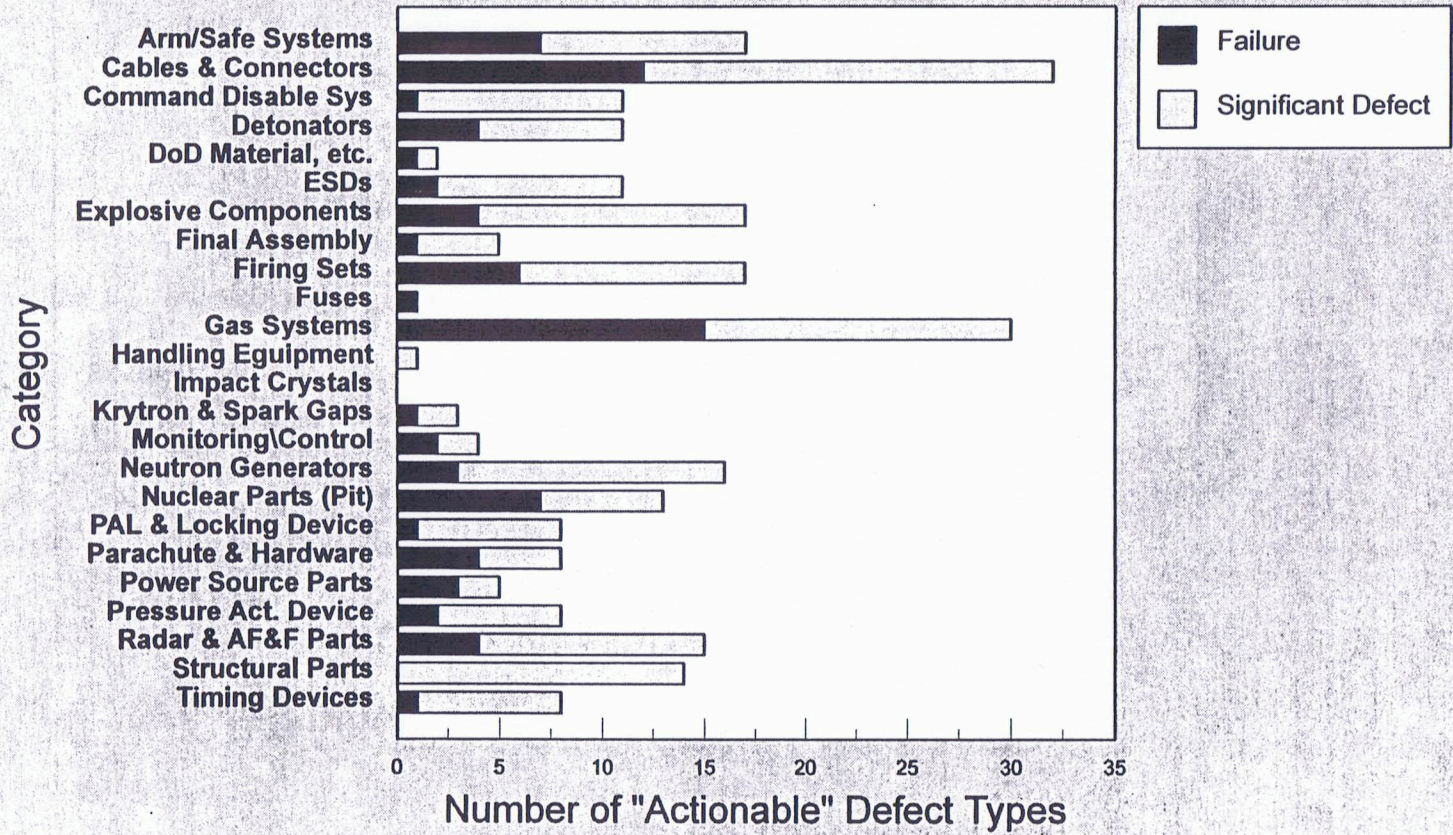
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257 "Actionable" Defect Types Grouped By Design Skill Categories



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SURVEY OF WEAPONS DEVELOPMENT AND TECHNOLOGY

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SESSION XVIII

- FIELD TRIP TO THE DEFENSE NUCLEAR WEAPONS SCHOOL'S

WEAPON DISPLAY AREA

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