



The Case for Stockpile Curatorship

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The 1993 Sandia Lab Stockpile Life Study

- “It is clear that, although nuclear weapons age, they do not wear out; they last as long as the nuclear weapons community (DoD and DOE) desires. In fact, we can find no example of a nuclear weapons retirement where age was ever a major factor in the retirement decision.”¹
- “Missions, policy, standards, delivery systems, and state-of-technology change; however, nuclear weapons do not wear out.”²

Deceptive Rationale: “Stockpile Stewardship” Needed Because of Loss of Testing

- DOE: “[N]o underground testing, and no new–design nuclear weapons production, means that the weapons will age beyond original expectations and an alternative to underground testing must be developed to verify the safety and reliability of weapons.”³
- Stockpile Study: “The Stockpile Evaluation Program does not include underground nuclear testing.”⁴
- Stockpile Study: No defects were discovered in “Stckpl Confid UGT” [Stockpile Confidence Underground Tests].⁵

Stockpile Stewardship Rationale and the Non-existent Upwards “Bathtub Curve”

- The 1993 Stockpile Study graphs a radical downward curve over 28 years in which the overwhelming majority of nuclear weapons defects were design and initial production flaws that were detected and corrected in the first 2 to 5 years of production. ⁶
- Vic Reis, former DOE Asst. Sec. for Defense Program (1993 to 1999), justified the Stockpile Stewardship Program by claiming that the “bathtub curve” for nuclear weapons defects would inevitably climb up someday because of aging effects.

Stockpile Stewardship Rationale?

- The National Nuclear Security Administration has yet to show that serious nuclear weapons defects have occurred that routine, long established maintenance programs can't detect and correct.
- ~\$90 billion has been spent on the Stockpile Stewardship Program to date. Despite that the Comprehensive Test Ban Treaty remains unratified, and the nuclear weapons design labs claim that long-term stockpile reliability cannot be guaranteed without new-design Reliable Replacement Warheads.

The Existing Stockpile Is Reliable

- “ [H]igh confidence in the safety and reliability of nonnuclear components and subsystems can be established” from initial manufacturing data. “[S]ubsequent laboratory and flight testing in the surveillance program accumulates additional data that include the effects of aging and exposure to stockpile environments.”⁷
- The November 2006 JASON “Pit Lifetime Study” concluded that plutonium pits have reliable lifetimes of 85 years or more, double DOE’s earlier projections.⁸
- NNSA states potential reliability problems exist in nuclear weapons secondaries, but has offered no evidence. **Is a lifetime study is needed to rule out other hinted-at nuclear component problems?**

The Bad: “Stockpile Stewardship” cum Reliable Replacement Warhead

- Life Extension Programs: “The evolution away from tested designs resulting from the inevitable accumulations of small changes over the extended lifetimes of these systems means that we can count on increasing uncertainty in the long-term certification of warheads in the stockpile.. we must evolve our strategy from today’s ‘certify what we can build’ to tomorrow’s ‘build what we can certify.’”⁹ -*NNSA Administrator Linton Brooks*
- “Strict discipline should be exercised over changes to existing nuclear weapon designs to ensure that neither an individual change nor the cumulative effect of small modifications would make it difficult to certify weapon reliability or safety without a nuclear explosion.”¹⁰ -*General John M. Shalikashvili*

The Reliable Replacement Warhead:

- Is a bad nonproliferation example, re: 2010 NPT RevCon, etc.
- RRWs will likely introduce their own initial design/production flaws.
- RRWs could imperil national security because they bet the Treasury on speculative new designs against maintaining existing reliable designs.

The Revolving Rationale:

- The latest sales pitch for RRW is for complete “Surety” against unauthorized use of nuclear weapons by terrorists. Built-in surety mechanisms could impact plutonium pit implosion performance, thereby possibly prompting full-scale testing.
- **“Guards, guns and gates” will always be necessary anyway.**
- Congress has rejected RRW for two consecutive years, but **should now beware of RRW by other names !!!**
(e.g., “Enhanced reuse LEP,” “Heavy LEP,” etc.)

The Good: A Nuclear Weapons Curatorship Program

- President Obama has pledged to work toward a nuclear weapons free world, but has also promised to adequately maintain the U.S. stockpile as long as other countries possess nuclear weapons.
- This is not necessarily a contradiction - - both could be implemented through a “Curatorship Program” that is built upon and augments already existing programs.

NNSA Should Prioritize Nuts-and-bolts Surveillance

- “The surveillance program’s role in assessing and assuring confidence in the reliability of the weapons stockpile is increasingly important as the nuclear weapons stockpile ages. However, as a result of the continuing backlog of surveillance tests, the Department lacks vital information about the reliability of the stockpile.” ¹¹ - *DOE Inspector General*
- The “Enhanced Surveillance Program” and replacement-as-needed of limited life components can reliably maintain the U.S. stockpile while global nonproliferation objectives are being progressively worked toward.

(Not so ugly) Legislative Recommendations

- A follow on study to the 2006 JASON Pit Lifetime Study should be required that determines:
 - 1) Projected reliable lifetimes of nuclear components other than plutonium pits;
 - 2) How proposed surety mechanisms could affect nuclear weapons reliability;
 - 3) How changes to existing nuclear weapons undergoing Life Extension Programs could be stringently minimized so that they adhere to original designs as closely as possible.

More Legislative Recommendations

- While continuing to reject RRW, Congress should legislate a requirement for independent expert risk/benefit analyses of proposed changes to existing nuclear weapons that could erode confidence by straying from original, tested designs.
- Congress should bar any new and/or replacement designs and modifications or changes made through Life Extension Programs that introduce new military characteristics.
- Unneeded nuclear weapons production facilities, such as Los Alamos' Chemistry and Metallurgy Research Replacement Project "Nuclear Facility" and Y-12's "Uranium Processing Facility", should have construction funding deleted and reprogrammed to Enhanced Surveillance.

Acknowledgement

- Special thanks and gratitude to the late **J. Carson Mark** an early Los Alamos H-bomb designer turned arms control advocate. In 1996 he said, “The big news is no news” on plutonium aging effects. Although he didn't know it, that subsequently inspired our successful request to Senator Jeff Bingaman to require independent expert review of NNSA plutonium pit lifetime studies. The resulting conclusion that plutonium pits last 85 years or more played a substantial role in Congress rejecting both the Reliable Replacement Warhead and related expanded plutonium pit production.

End Notes

- ¹ 1993 Stockpile Life Study, SNL p. 1 http://www.nukewatch.org/facts/nwd/Sandia_93_StockpileLife.pdf (PDF pages in the scanned copy by Nuclear Watch New Mexico; there were no numbered pages in the original).
- ² Ibid, p.6
- ³ Final Stockpile Stewardship and Management PEIS, DOE, 1996, p. S-1.
- ⁴ The Role of Underground Nuclear Testing in the Maintenance of the Stockpile, 1993 Stockpile Life Study, SNL, p. 4.
- ⁵ Ibid., p. 10.
- ⁶ Ibid., p. 8.
- ⁷ Final Stockpile Stewardship and Management PEIS Summary, p. 19.
- ⁸ Pit Lifetime (http://www.nukewatch.org/facts/nwd/JASON_ReportPuAging.pdf)
- ⁹ NNSA Administrator Linton Brooks arguing for RRW before the Senate Armed Services Committee, April 4, 2005.
- ¹⁰ Findings and Recommendations Concerning the Comprehensive Nuclear Test Ban Treaty, General John M. Shalikashvili (USA, Ret.), Special Advisor to the President and Secretary of State, January 2001.
- ¹¹ Follow-up Audit on Stockpile Surveillance Testing, DOE/IG-0744, DOE Inspector General, October 2006, [http://www.ig.energy.gov/documents/IG-0744\(2\).pdf](http://www.ig.energy.gov/documents/IG-0744(2).pdf)