

A tribute to the nuclear weapons career of the late Robert L. Peurifoy (1928-2017) was recently posted on Google at:

https://drive.google.com/file/d/1eP_6cbSdN3yznKuvEn-1k-xdlbVtffP/view?usp=sharing

Bob Peurifoy managed design and development of nuclear weapons at the Sandia Corporation for 39 years and devoted all his retired years to independent consulting on nuclear weapons and arms control issues with several scientific organizations. The "Tribute" contains excerpts from his 2011-2016 e-mail archive.

The 87-page Tribute contains a wealth of observations, data, and references which continue to be relevant to many contemporary nuclear weapon programmatic, operational and budgetary considerations. The following paragraphs provide examples of the document's contents. For much more detail and justifications for Bob's observations, please consult the full Tribute document.

Page 3: From the 1948-1989 Era, while 90 weapons entered development, 60 weapon types entered the stockpile, 1000 nuclear tests were conducted, 70,000 weapons were stockpiled, 50,000 weapons were retired, and 13,000 weapons were retired, to the 2011-2020 Era while no nuclear weapon types will enter development or the stockpile, no nuclear tests will be conducted and an unknown number of weapons will be retired, the Nuclear weapons budget has grown from about \$5.1 billion to \$8.6 billion. Peurifoy observed that "The managers of the weapon program now seem to believe that their mission is to increase the weapon program budget and protect payroll."

Page 8: Twelve years, over 5000 individuals briefed, two high-level scientific reviews, and one journalist's expose is what it took before the last of the nuclear weapons Bob Peurifoy considered unsafe in an accident environment were removed from quick reaction alert (QRA) and the stockpile. Would the situation be any better should a major new safety issue be identified in the future?

Page 30: Regarding the B61 program: Peurifoy says "I assert that the B61's are not dying, can continue to be maintained, and do not require a crash, new-technology makeover." Nine attachments are provided to support this assertion. Also: "I am not enthusiastic about our government's spending \$10-\$15 billion to fix a bomb that has not been shown to be broken."

Page 40: Concerning the risk of introducing new problems into stockpiled weapons, Peurifoy noted "In any event, it is important that the United States keep any modifications to the nuclear explosive package to a minimum. As noted on page 3 of the 2002 National Academy of Sciences (NAS) study [Technical Issues Related to the Comprehensive Test Ban Treaty](#), chaired by then current White House Science Advisor, John P. Holdren: "It is important that a rigorous, highly disciplined process be instituted for controlling changes in nuclear components. Such a process must discourage deviations from the original specifications." If you start to make changes to the existing nuclear explosive packages, you risk introducing problems that weren't there to begin with."

And regarding health of the stockpile, he observed: "I assert that the current stockpile is okay and, given proper attention, it will remain so. Programs are in place that will maintain it, and the folks in the trenches are doing a good job. The life extension programs work. I don't believe more money is needed."

"Moreover, the performance of U.S. weapons will remain unchanged even with the small changes that can be anticipated during a life extension program. As the NAS study states on page 21: "... the systems in the U.S. enduring stockpile are robust, meaning not very sensitive to small variations from design specifications or conditions." According to the [Executive Summary](#) of the September 9, 2009 report (JSR-09-334E) on the Lifetime Extension Program (LEP) the JASON group of scientific advisors to the military, "JASON finds no evidence that accumulation of changes incurred from aging and LEPs have increased risk to certification of today's deployed nuclear warheads. Lifetimes of today's nuclear warheads could be extended for decades with no anticipated loss in confidence, by using approaches similar to those employed in LEPs to date."

Page 49: Regarding the need to replace aging warheads: “I say, you need not replace any of the stockpiled strategic missile warheads or their associated RBs and RVs. Since the early 1990s, the Club has operated in a panic mode (organizational preservation, coupled with organizational entropy), desperate to find ways to spend your money without purpose. For example, witness the following claims: Plutonium pits are dying. Margins are insufficient. REPWs are needed. RRWs are needed. Yields are wrong. Safety must be improved. Security must be improved. Reliability must be improved. Vacuum tubes are dying. The B61-12 is needed. Modernization is essential. Interoperable warheads are needed.”

“I challenge each of these claims.”

Page 70: On the relevance of ICF [inertial confinement fusion] research to stockpile maintenance: With reference to the statement by DOE that “The Inertial Confinement Fusion and High Yield Campaign along with NNSA's Science and ASC Campaigns provide the essential capabilities and knowledge required for ongoing assessment and certification of the nuclear weapons stockpile.”, Peurifoy observed: “*Note: There have been 16 annual certifications of the nuclear weapons stockpile without NIF [National Ignition Facility]. Think carefully about this statement.*”

And to the statement “It is important to note that if ignition is not achieved eventually, then SSP's ability to investigate issues with or requiring a burning plasma in the laboratory will be limited severely. Weapon scientists will be unable to experimentally explore the potential impacts of some warhead life extension design or component options related to thermonuclear ignition and burn.”, Peurifoy replied: “*Note: Okay, so don't execute those options.*”

“NIF is worthless . . . it can't be used to maintain the stockpile, period.”

Page 79: On weapons program Management: “There are several reasons for the current behavior of the nuclear weapon program managers. One was the establishment of UCRL (now LLNL) in the early 1959s. Another is the "free goods" attitude of the DoD. A third reason is the shortage of work. A fourth is mission confusion. I favor moving the cost of nuclear weapon production to the DoD. I was a member of the 1976 Transfer Study that recommended against such a move. I made a mistake.”

“If I were king, I would reduce LLNL's and SNLL's [Livermore Laboratories] weapons role to zero within 5 yrs. I would cut them free to do anything national scientific markets call for, but with near zero gov't sponsoring. They could grow as large as they wish, so long as they brought in reimbursable work. Because they are smart people and good at sales, I think they would actually prosper.

LANL [Los Alamos] would become the DOE weapons lab along with SNL [Sandia Albuquerque].

I would separate SNL into 2 parts, one-part weapons only, the other part could be anything they want to do, but with near zero gov't financing.

I believe huge cost avoidances would be realized and weapons work would be better supported.

I would outsource all of KCP's [Kansas City] products except safeguards/security products everything else outside on bid.

There are huge system gains begging to be harvested.”