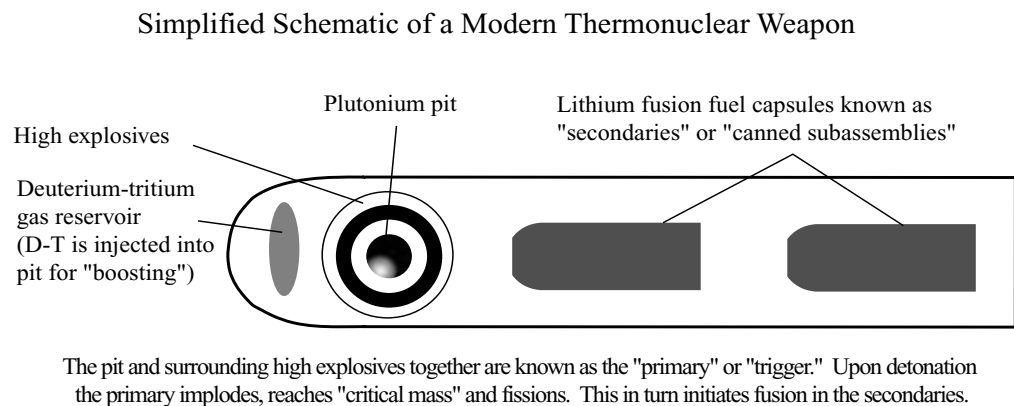


## An Overview of Present and Future U.S. Plutonium Pit Production

The most critical element in the resumption of U.S. nuclear weapons production programs is the re-establishment of plutonium pit production. Plutonium pits, in combination with high explosives, are the primaries or "triggers" for modern thermonuclear weapons. When imploded by high explosives, the pits reach "critical mass" and fission. This then initiates fusion in thermonuclear secondaries, thus creating the immense destructiveness of modern nuclear weapons. [Plutonium pits are also weapons in their own right, as the destruction of Nagasaki demonstrated.] The **Department of Energy** (DOE) lost the capability to produce plutonium pits in 1989 after a FBI raid investigating alleged environmental crimes at the Rocky Flats Plant near Denver. Since then DOE has relocated plutonium pit production to the **Los Alamos National Laboratory** (LANL) in northern New Mexico. This is, in many respects, a return to the lab's "roots," as LANL was the original site of plutonium pit production. But because of inherent limitations to the possible scale of plutonium pit production at the lab DOE is now planning for a new super production facility, most likely to be built at the Savannah River Site in South Carolina.

"Target [of Los Alamos's plutonium pit production campaign]: Re-establish a robust pit manufacturing capability to produce stockpiled and new-design pits without underground testing." LANL FY 2001 Institutional Plan.



### What is the Need for Continuing and Expanding Plutonium Pit Production?

DOE's semi-autonomous **National Nuclear Security Administration** (NNSA) is revitalizing the U.S. nuclear weapons complex through its so-called **Stockpile Stewardship Program**. Funding for that program is far in excess of Cold War averages for core nuclear weapons research, testing and production programs. The touted rationale for the program is to ensure the safety and reliability of the nuclear weapons stockpile in the absence of full-scale testing (in which the projected future performance of plutonium pits is absolutely key). To meet legal requirements in implementing the Stockpile Stewardship Program (that had to be enforced by citizen activists) DOE prepared a programmatic environmental impact study in 1996. DOE's own language from that study contradicted the urgent need for the aggressive pit production campaign that the NNSA has implemented. First, as a baseline: "The [U.S. nuclear weapons] stockpile is currently judged to be safe and reliable by DOE." Additionally, "Most pit requirements during weapon refurbishment are expected to be satisfied by requalification and reuse of existing pits *since historical pit surveillance data and pit life studies do not predict a near-term problem.*" Moreover, "*No age related problem has been observed in pits up to 30 years in age ...*" On the subject of whether radioactive decay could impair the performance of U.S. nuclear weapons, "*With regard to the buildup of decay products alone, DOE does not currently believe this will become a problem in less than 50 years ...*" Finally, "Nuclear components (pits and secondaries) are expected to have service lives significantly in excess of their minimum design life of twenty to twenty-five years." (Emphases added.)

Since 1996, various studies under the Stockpile Stewardship Program have determined that plutonium and the high explosives used in U.S. nuclear weapons primaries actually grow more stable with age. "Perhaps the most

important result from measurements is that Pu [plutonium] exhibits good crystalline order even after decades of aging ... The high explosive used in U.S. weapons has been found to improve systematically with age in key measures of performance ... crucial primary-stage components that were initially subject to concern have been shown through the SSP [Stockpile Stewardship Program] to be robust as they age. Indeed, there is now consensus among specialists that the Pu pits in the U.S. stockpile are stable over periods of at least 50-60 years, with the most recent studies suggesting a far longer period." ("Science-Based Stockpile Stewardship," Raymond Jeanios, *Physics Today Online*, December 2000.) Thus, there appears to be little justification for an aggressive US pit production campaign based only on the proclaimed need to maintain safety and reliability.

### **Current Status of US Pit Production**

DOE formally decided in 1996 to relocate its pit production operations to LANL. However, this decision was effectively made long in advance by the lab. In its 1993 *LANL Strategic Plan* the lab set out to grab all of the weapons programs that it could in the then-consolidating nuclear weapons complex. Foremost among these was plutonium pit production, which the lab had always done for weapons research and development and for stockpile production before the Rocky Flats Plant was built. Since 1996, more than a half billion dollars has been pumped into LANL's plutonium pit production campaign and related facilities. For all this money the lab was to produce a "war reserve" plutonium pit for the US stockpile by 2003, but this has slipped to as late as 2009. Additionally, whereas LANL was to produce up to 80 pits per year, this has slipped to 20 per year. The DOE and congressional response to the limitations constraining LANL pit production has been to: 1) pour ever increasing amounts of funding into the lab and 2) plan for a new super production facility outside of LANL. With respect to the former, in the last two annual budget cycles funding for LANL pit production has been increased by 50% each year (the total FY 2002 request is for \$217.7 million). Additionally, the lab is now planning an advanced plutonium laboratory (estimated cost \$865 million) to be sited next to its pit production facility and underground vault for "special nuclear materials." This advanced lab will be the cap in the creation of what LANL calls a "nuclear campus."

### **The "Modern Pit Facility"**

The NNSA has recently formed a dedicated plutonium pit production office at DOE headquarters in Washington, D.C., and has stated that DOE needs to build a pit production facility beyond LANL's capabilities. The FY 2001 budget for conceptual design of the "modern pit facility" is \$2 million. This was tripled in July with supplementary funding of \$4 million. The FY 2002 request for the facility's design is \$4 million, which can be easily supplemented as well. Moreover, the NNSA is rapidly moving forward beyond mere design. An official has stated that DOE will announce sometime in FY 2002 the preparation of an environmental impact statement, thus indicating that facility construction may start within a couple of years. One DOE study has stated that the modern pit facility will be capable of production rates of up to 500 pits per year (comparable to Cold War rates!). This same study identifies the Savannah River Site as the "only technically single site option." Initial construction cost estimates for the modern pit facility are as high as \$4 billion.

### **Why?**

Why is the U.S. putting such an aggressive and expensive effort into the re-establishment and expansion of plutonium pit production when the Cold War is long over? The likely answer lies in the fact that the NNSA is planning an aggressive schedule of nuclear weapons modifications and possible new designs to meet "new and emerging threats" (for more, please see "Alterations, Modifications, Refurbishments and Possible New Designs" at [www.nukewatch.org](http://www.nukewatch.org)). Obviously the U.S. nuclear stockpile will not deter terrorism such as the horrific September 11 attacks. Moreover, the biggest threat to the U.S. is the existence of weapons of mass destruction, in which the U.S. should lead towards their elimination. But to the contrary, LANL has recently declared that the target of its plutonium pit production campaign is to "[r]e-establish a robust pit manufacturing capability to produce stockpiled and new-design pits without underground testing." (Emphasis added.) This completely circumvents the stated intent of the test ban treaty (observed but not ratified by the U.S.) to stop the continuing advancement of nuclear weapons. It further contradicts the pledge that the U.S. and other nuclear powers made in the 1970 NonProliferation Treaty to disarm their nuclear stockpiles (restated by them in 2000 as "an unequivocal commitment"). There can hardly be more concrete evidence of the U.S.'s true intentions to never disarm its nuclear stockpile than its current and future plans for plutonium pit production, a regressive policy in a world that should rid itself of weapons of mass destruction.