

Expanded Plutonium Pit Production for U.S. Nuclear Weapons

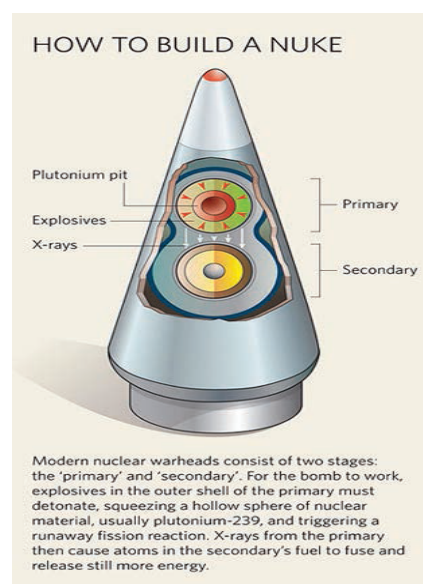
Summary: Plutonium pit production is a chokepoint of resumed U.S. nuclear weapons production. Citizens have defeated four past government attempts to expand pit production. Now Trump promises to increase military spending, and Congress has already required expanded pit production at the Los Alamos Lab regardless of the technical needs of the stockpile. This will enable the continuing evolution of the U.S. nuclear weapons stockpile with new military capabilities. Trump’s pending federal budget will likely fund new and upgraded plutonium facilities expected to be operational for at least the next half-century. But expanded plutonium pit production faces serious hurdles, including typical cost overruns, nuclear criticality safety issues, waste treatment problems, legally required public review and citizen opposition.

Production of plutonium pits, the grapefruit-sized fissile cores of nuclear weapons, has always been a chokepoint of resumed U.S. nuclear weapons production ever since the FBI shut down the Rocky Flats Plant near Denver while investigating environmental crimes. In 1997 the mission of plutonium pit production was officially transferred to its birthplace, the Los Alamos National Laboratory (LANL) in northern New Mexico, where it remains officially capped at not more than 20 stockpile pits per year. Since then, citizen activists have stopped the Department of Energy’s semi-autonomous nuclear weapons agency, the National Nuclear Security Administration (NNSA), in each of its past four attempts to expand pit production.

But now we are probably facing our most serious threat, with NNSA again seeking to expand plutonium pit production. Ironically there is no need to produce pits for the existing nuclear weapons stockpile, and none are currently scheduled. Nevertheless, LANL is now tooling up to produce new pits for a so-called Interoperable Warhead designed for both land-based and submarine-launched ballistic missiles, despite the fact that the Navy doesn’t support it and the Obama Administration delayed it for five years.

The U.S. government has offered no justification for the exorbitant expense and environmental and safety risks associated with expanded production, other than to say that it is an undisclosed military requirement. But expanded plutonium pit production will enable the ongoing evolution of the U.S. nuclear weapons stockpile, with “Life Extension Programs” giving existing nuclear weapons new military capabilities despite denials at the highest levels of government.

NNSA’s pending fiscal year 2018 budget will likely include new and upgraded plutonium facilities at LANL that will be operational for at least the next half-century, obstructing global progress towards a future world free of nuclear weapons. This is now exacerbated by President Trump’s announced military buildup and his general assertion that the U.S. must expand its nuclear weapons capabilities. But long before Trump came to power, Congress had already required expanded pit production in the 2015 National Defense Authorization Act. Schematic credit: *Nature*



That law, drafted by the neoconservative Strategic Forces Subcommittee of the House Armed Services Committee, made a point of delinking expanded production from the actual needs of the stockpile. That is convenient for them, given that a 2006 pit lifetime study initiated by ex-Senator Jeff Bingaman at Nuclear Watch's request found that pits last at least 85 years, in contrast to the 45 years previously claimed by the government.

The law stipulated that "timelines for creating certain capacities for production of plutonium pits and other nuclear weapons components must be driven by the requirement to hedge against technical and geopolitical risk and not solely by the requirements of life extension programs [for existing nuclear weapons]," which gives expanded plutonium pit production a blank check. While deeming it a "national security priority", Congress required the Los Alamos Lab to "demonstrate the capability to produce war reserve plutonium pits at a rate sufficient to produce 80 pits per year" by 2027.

Nevertheless, it won't be easy for the Los Alamos Lab to expand plutonium pit production, given citizen opposition, legal requirements and problems of its own making, arguably due to its own incompetence. For starters, LANL's main plutonium facility has been shut down since June 2013 because of chronic nuclear criticality safety concerns, and only recently has restarted major operations without all problems being fixed.

Further, an improperly prepared radioactive waste barrel from LANL ruptured at the Waste Isolation Pilot Plant (WIPP), contaminating 21 workers and shutting down the only repository for plutonium wastes from pit production (it has only recently restarted limited operations). In addition, the WIPP debacle prompted the federal government to open the LANL management contract up for bid, which will inevitably cause turbulence and uncertainty at the Lab. Finally, the federal National Environmental Policy Act requires meaningful environmental review of any expansion of plutonium pit production at LANL, which could seriously delay it and/or offer opportunities for citizen litigation.

Current Status of Plutonium Pit Production at LANL

To enable expanded pit production at LANL, NNSA proposed the Chemistry and Metallurgy Research Replacement (CMRR) Project in 2004. The plan was to replace the old CMR Building with two buildings – the Radiological Laboratory Utility and Office Building (AKA the "Rad Lab") and the Walmart-sized CMRR-Nuclear Facility (CMRR-NF). The Rad Lab has been constructed. In 2014 the CMRR-NF was officially cancelled because of constantly escalating costs and a NNSA decision to prioritize the Uranium Processing Facility at the Y-12 Plant near Oak Ridge, TN.

As an alternative to the CMRR-Nuclear Facility, NNSA and LANL proposed to expand plutonium pit production by:

- 1) Raising the administrative limit for plutonium at the Rad Lab from 8.4 grams of plutonium-239 equivalent to as high as 400 grams, at an estimated cost of up to \$365 million. This is significant because it will dramatically increase the number of quality control analytical chemistry samples in direct support of expanded plutonium pit production. Another \$675 million is planned on additional equipment for the Rad Lab, with the combined \$1 billion-plus far more than the original \$400 million spent to build and equip the facility to begin with.
- 2) Upgrading and extending the life of LANL's existing plutonium pit production facility, PF-4, which will cost up to \$1 billion.

3) Building “not less than two modular structures that will achieve full operating capability not later than 2027,” expected to cost a billion each.

Given the usual cost overruns, eventual costs may meet or exceed the CMRR’s estimated cost of \$6.5 billion when it included the Nuclear Facility. Meanwhile, funding for cleanup programs remains flat, and LANL plans to “cap and cover” some 200,000 cubic yards of radioactive and hazardous wastes at Area G, leaving it permanently buried in unlined pits and trenches, above our groundwater aquifer.

Timeline of Reestablished Plutonium Pit Production History at LANL

June 1989: an FBI raid investigating environmental crimes abruptly stopped production of plutonium pits at the Rocky Flats Plant near Denver.

December 1997: DOE formally decides to relocate production to LANL, the birthplace of plutonium pits. That decision was fortunately elevated to public debate by the legal requirements of the National Environmental Policy Act (NEPA), resulting in the Stockpile Stewardship and Management Programmatic Environmental Impact Statement. But unfortunately the real decision was predetermined, as some Rocky Flats personnel, plutonium and equipment had previously been transferred to Los Alamos. However, plutonium pit production was formally capped at 20 per year, mostly because of the increasing deterioration of the Lab’s old CMR Building.

May 2003: The NNSA releases a draft environmental impact statement for a “Modern Pit Facility” (MPF), to be located at one of five candidate sites, including LANL. The MPF was designed to produce up to 450 pits per year, a throw back to Cold War levels that NNSA never could justify. After questioning by Congress the agency lowered its claimed needed rate for future production to 250 pits per year. Finally, NNSA dropped the MPF altogether after a groundswell of formal citizen comment against it from across the country.

February 2004: NNSA issues a Record of Decision to proceed with construction of the Phase 1 “Radiological Laboratory” for the Chemistry and Metallurgy Research Replacement Project at LANL, which was completed in 2011. However, the CMRR’s second phase, the ~\$6.5 billion “Nuclear Facility”, was canceled in 2014 because of escalating costs.

October 2006: NNSA announces its intent to prepare a programmatic environmental impact statement for “Complex 2030”, the nuclear weapons complex it planned by that year. Complex 2030 included a “Consolidated Plutonium Center” capable of producing 125 pits per year, explicitly linked to the production of new-design nuclear weapons called Reliable Replacement Warheads (RRWs), which were later rejected by Congress. This proposal is withdrawn after extensive citizen comment against it from across the country.

November 2006: The JASONS (independent consultants to the U.S. government) release a pit life study required by Sen. Jeff Bingaman at Nuclear Watch New Mexico’s request. **The pit life study concluded that pits have reliable lifetimes of at least 85 years, roughly double NNSA’s previous estimates.** This dramatically undercut NNSA’s claimed needs for new-design RRWs and directly related expanded plutonium pit production.

June 2007: LANL produces its first stockpile-qualified plutonium pit for the sub-launched W88 warhead (the W88 pit was in production at the Rocky Flats Plant when the 1989 FBI raid stopped it). This first pit was five years behind schedule and cost ~3 billion dollars, nearly triple original estimates.

January 2008: NNSA redubbed Complex 2030 as “Complex Transformation” and released a draft programmatic environmental impact statement that received more than 100,000 public comments overwhelmingly against it. Among other things, it proposed an expanded production rate of 50-80 pits per year at LANL, enabled by construction and operation of the CMRR-Nuclear Facility.

May 2008: NNSA releases a final Site-Wide Environmental Impact Statement (SWEIS) for Continued Operations at LANL, in order to implement the proposed expanded pit production level of 50-80 pits per year at the site-specific level. In both the Complex Transformation PEIS and the LANL SWEIS Nuclear Watch New Mexico and others argued that a decision to expand pit production should await the outcome of the Obama Administration’s high-level Nuclear Posture Review in 2010. NNSA eventually agreed.

December 2008: NNSA’s Complex Transformation Record of Decision designates LANL as the nation’s sole site for plutonium pit production. It also reaffirmed building the CMRR-Nuclear Facility, but was forced to punt on the number of pits to be produced each year, leaving in place the existing production cap of 20 pits per year. **No legally required National Environmental Policy Act process has approved expanding plutonium pit production above the 20 pits per year cap established in 1997.**

June 2012: LANL completes its production campaign with a total of 30 W88 plutonium pits over 5 years. No other plutonium pits are currently scheduled for stockpile production (however, the Lab does periodically produce practice pits). LANL is now tooling up for future production of W87 plutonium pits for a so-called “interoperable” warhead that would replace the ICBM W78 warhead and sub-launched W88 warhead.

June 2013: Major plutonium operations at LANL’s Plutonium Facility-4 (PF-4) are stopped because of nuclear criticality safety concerns, which could cause lethal neutron fluxes.

February 2014: The Waste Isolation Pilot Plant, the world’s only deep geologic radioactive waste repository, primarily for plutonium-contaminated wastes from nuclear weapons research and plutonium pit production, is closed following contamination from a ruptured drum prepared by LANL using unauthorized radioactive waste handling procedures. Cost estimates range up to \$2 billion to get WIPP back to full operations.

January 2017: WIPP restarts waste disposal operations on a very limited basis. Waste shipments from LANL are not expected to resume until September 2017. Projected waste shipment from LANL will continue to be much less than before until a new ventilation shaft is completed, not expected until 2020. Given LANL’s current waste inventory and projected one shipment per week, it will take years to dispose of LANL’s plutonium-contaminated waste inventory.

January 2017: The last plutonium operation at LANL’s PF-4 was approved to be restarted after being suspended since June 2013. This sets the scene for the restart of pit production.

April/May 2017?: The Trump Administration releases its first federal budget, which will likely include upgraded and new plutonium facilities for expanded plutonium pit production at LANL.

This fact sheet is available at <http://nukewatch.org/facts/nwd/PitProductionFactSheet.pdf>
For a history of successful citizen activism against expanded plutonium pit production see <https://nukewatch.org/facts/nwd/Pit-Production-History.pdf> *March 24, 2017*