

Los Alamos Study Group

Expansion of Los Alamos Plutonium Warhead “Pit” Factory Eyed Pits “needed” only for new warheads for planned new ICBMs

As part of a trillion-plus dollar plan to upgrade the entire US nuclear arsenal, the Department of Energy (DOE) wants to build a new factory complex to expand production of plutonium (Pu) warhead cores (“pits”) at Los Alamos National Laboratory (LANL).

This expansion isn’t needed. It is costly and hazardous. It would damage New Mexico’s economy, polity, environment, and society. It would enable a dangerous new arms race. The good news is, it can be stopped.

Pit production isn’t actually needed at all, let alone at an expanded rate

No pit production at all is needed to maintain all existing US nuclear weapons. Although certain details remain classified, pits last for roughly a century – until 2080 or longer. There are also large quantities of spare warheads and/or pits available for every US weapon. There are about 1,740 deployed weapons, plus 2,740 spare and reserve warheads, plus 2,300 intact warheads not being maintained, plus roughly 16,000 surplus pits of which about 5,000 are in strategic reserve. Somehow all these warheads and pits have been judged “not enough.” One warhead, with one pit, can destroy a whole city. A hundred small detonations could bring nuclear winter and global starvation, risking billions of lives.

Weapon retirements would decrease infrastructure requirements and costs across the board, and increase pit reserves even beyond the present robust levels in both absolute and relative terms. By early 2013 all US government agencies agreed that a 1/3 cut in US nuclear forces would not negatively affect the US deterrent under all conceivable scenarios. That cut never happened. Aggressive modernization of the whole arsenal and infrastructure was chosen instead. As a result, warhead budgets are expected to rise contin-

uously through 2040 and beyond. Pentagon leaders have said they have no idea how to pay for it all.

More pits are needed only for extra new-design warheads for planned new ICBMs

Pit production is “needed” only for the proposed new “interoperable” Air Force/Navy warhead (“IW-1”). IW-1 would not be “interoperable” actually. There would need to be two versions and the Navy does not really want this costly program (at least \$14 billion, not including new pit infrastructure) or the warheads it would produce.

If IW-1 goes forward, new pits would be needed only if IW-1s were stockpiled well in excess of current deployments to prepare for future treaty breakout. IW-1 would use state-of-the-art W87 pits, of which about 540 are available – plenty for the 400 ICBMs allowed under the US New START plan. IW-1 would be deployed beginning in 2030. After that, first production of an “IW-2” is planned for 2034 (no new pits required), an “IW-3” in 2041 (with new pits), and a new nuclear bomb after that. Before this, in the 2020s, all three other upgraded warheads in the Obama-Trump grand plan would use existing pits.

Retire risky “use’em or lose ‘em” ICBMs

We believe US ICBMs, as a class, should be retired as destabilizing, dangerous and unnecessary, rather than replacing them starting in 2030 at an unknown but staggering cost in the range of \$85-150 billion (B). Former STRATCOM commander and Vice-Chair of the Joint Chiefs of Staff James Cartwright has stated that the US ICBM force “has no deterrent value.” Former Secretary of Defense William Perry agrees. So do we.

These obsolete, dangerous missiles should be retired.



About this series

It has become abundantly clear that we cannot any longer maintain our society or environment without rediscovering our solidarity with one another, within the US and in our foreign policies. Neither can we survive without a stable climate and living nature. Converging crises in climate and the environment, in our economy and society, now compel us to abandon militarism and empire as well as “winner-take-all” capitalism. Science – even arithmetic – tell us we must embrace a “Green New Deal” on an emergency basis, just to survive. There is no other option. We have what we need: sun and wind, skills, capital, love of life. No one can work for justice or a living earth without rejecting their deadly opposite: the “long war” for hegemony and fossil fuels – and the reckless new nuclear arms race, its essential, enabling core.

Existing pit facilities: adequate for all rational purposes

LANL’s new pit complex is not needed even for the greatly expanded pit production required by current (arbitrary) law: an 80 pit/year capacity must be demonstrated by 2027. Extensive LANL-backed research by the Congressional Research Service has shown that better management of existing facilities would meet this (purely political) mandate faster and cheaper and with less risk than building new facilities.

Existing facilities are not being maintained or operated safely

LANL’s main plutonium facility (“PF-4”) is huge (235,000 sq. ft. in all, with 60,000 sq. ft. available for plutonium processing and manufacturing). It currently holds about 4 metric tons of weapons-grade plutonium. PF-4, built in 1978 before the magnitude of seismic risk at LANL was understood, is and will remain the cornerstone of plutonium work at LANL.

PF-4 was shut down for high-mass operations in June of 2013, after LANL’s troubled criticality safety program collapsed. LANL restarted some pit activities in late 2016, but safety problems persist and stand-downs continue.

PF-4 needs hundreds of millions in structural and mechanical upgrades, which DOE and LANL have variously slow-walked or resisted for more than a decade. As a result PF-4 is dogged with management problems and is dysfunctional for production.

RLUOB will be the most expensive building in New Mexico (\$1.4 billion), if it is ever finished.



Meanwhile LANL seeks to stuff PF-4 with new industrial missions, not just pit production but also processing of 34 tons of surplus plutonium (mostly pits) into waste, plus new production of Pu-238 batteries for NASA and others. None of this is necessary. Taken altogether it will prove impossible to bring all these missions to LANL, a “faulty” site for many reasons, not just seismically. Mistakenly prioritizing new missions over safety and sound management, a long-standing LANL pattern, is certain to produce more accidents and management debacles.

LANL contractor fired; who's next?

In 2006, after more than six decades of management, the University of California (UC) lost its LANL contract to Los Alamos National Security (LANS), a partnership of Bechtel, B&W, what is now AECOM, and UC. After: 1) mismanaging PF-4; 2) shutting down the Waste Isolation Pilot Plant (WIPP, the nation's only nuclear waste disposal site) by incompetently (if not criminally) treating plutonium wastes with organic materials and shipping these unstable mixtures under false pretenses and causing a deflagration that contaminated much of the WIPP underground; 3) badly burning an employee despite warnings about this very accident; and 4) an assortment of other fiascos costing hundreds of millions more, LANS was fired, effective Sept 30, 2018.

Who will be next, and will it matter? LANL is difficult to manage, for permanent reasons. Lack of accountability has been constant. Meanwhile DOE is falling behind in maintenance nationwide as new weapons programs driven by hawks in Congress and the administration, plus sky-high salaries and overhead, take precedence over sound operations and safety. The warhead complex is more than 95% privatized and has largely lost control of its greedy contractors. Today's grandiose pit plans are driven by ideology, greed, pork-barrel politics, and nothing more.

Seven or eight failed pit plans so far

These plans are just the latest. DOE has put forward at least seven prior pit production expansion plans since 1989 when the Rocky Flats production site was closed as a result of flagrant environmental and safety problems – a new plan every 3 or 4 years.

In 1997, the Santa Fe metro area was chosen to host the pit mission. At the time, LANL said it already had an in-place production capacity of 50 pits/year. LANL was chosen for the mission in large part because LANL and DOE said no construction would be necessary to expand LANL's production capacity. Since then, public and congressional exposure, detailed critique, and litigation have stopped every subsequent plan. They typically founder on total lack of need, extreme cost and risk, and consequent lack of administration, military, and congressional support.

Make bombs, waste land

Disposal of pit production's transuranic (TRU) wastes – past, present, and future – is the main raison d'être of WIPP. Re-start of pit production will produce even more TRU waste, with no end in sight. Existing plutonium buildings like PF-4 used for pit production, and any new ones that are built, will also become permanent environmental challenges for future generations.

Most expensive buildings in NM; by the square foot the most expensive anywhere

LANL's pit production complex involves many buildings and supporting infrastructure, including not just special facilities for plutonium and beryllium but also “cold” (nonradioactive) shops, electrical supplies, liquid and solid radioactive waste management, on- and off-site disposal of nuclear waste, emergency response facilities, and much more. Plutonium facilities are very costly. The two proposed underground production “modules” are now expected to cost up to \$3 (B) for 10,000 sq. ft. of working space, or \$300,000/sq. ft., twice the

unit cost of the previous too-expensive plan. There is no real estate on the planet this expensive. These modules are the flagship components of the new plan.

The previous plan, called the Chemistry and Metallurgy Research Replacement (CMRR) project, involved constructing two buildings, a Nuclear Facility (CMRR-NF, 90% of total cost), and a Radiological Laboratory, Utility and Office Building (RLUOB). CMRR-NF was finally cancelled after Study Group litigation, but RLUOB was built. DOE claimed for a decade that RLUOB would never contain more than 8 grams of Pu-239 equivalent (Pu-239e) radionuclides, total.

It now turns out that RLUOB at 8 g Pu-239e cannot be used for its stated analytical chemistry purpose. DOE now says RLUOB needs a 400 g Pu-239e capacity, even though RLUOB was not built to such a “nuclear facility” standard. One issue is seismicity. DOE and LANL were aware of the site's true seismic risks during design but chose to build RLUOB to a lower and now plainly inadequate standard.

Originally, RLUOB cost \$167 million (M). Its equipment cost an additional \$197 M. DOE estimates the RLUOB re-do will cost \$35 M for the building, plus \$633 M for more equipment, plus \$339 M to re-categorize RLUOB as a 400 g Pu-239e nuclear facility (how?). Total cost: \$1.371 B, far more than any other building in New Mexico, including runner-up PF-4.

Meanwhile PF-4's new equipment tab is estimated at a cool \$1.069 B, plus \$180 M for the latest building repairs, supposedly the last but still not including seismically-qualified ventilation or back-up power or adequate fire protection. Hundreds of millions have already been spent on upgrading pit production infrastructure in PF-4 and adjacent buildings. Additional hundreds of millions are being spent on related waste management infrastructure. None of this includes operating expenses (past and future), waste management, or environmental remediation. ♦



LANL TA-55 complex with proposed underground production modules shown in red. PF-4 is the large central structure; RLUOB at lower right.