



# Los Alamos Study Group

*Nuclear Disarmament • Environmental Protection • Social Justice • Economic Sustainability*

[Letter to various federal professional staff, January 30, 2024]

Dear colleagues --

(I am here in Washington, preparing to attend the Nuclear Deterrence Summit" hosted by Exchange Monitor Publications. It is as you know an industry-oriented event. I am uncomfortable there at times but do learn and it provides the opportunity to talk with people "on the other side," as well as with some of you.)

The Los Alamos Study Group is as you know an anti-war group as well as a nuclear weapons policy organization, and as such we have been kept very busy these days, too busy to provide much in the way of detailed analyses prior to this visit to Washington, especially regarding plutonium pit production, NNSA's largest endeavor.

What might be helpful to you is the following summary of what we see as **the most important changes, continuing issues, and new realities in 2023 bearing on pit production**, which more or less fall under the following headings. For the most part I have omitted references (ask me for them if needed), as well as explanatory details.

In sum, more effective congressional oversight is badly needed, with a re-framing of the issues.

If any of you would like to meet, I am available by phone or Zoom (or equivalent) from New Mexico starting next week. This week, apart from break times at the above conference, is taken.

Here then are what we see as the most important new and continued issues relating to pit production this past year, starting from the publication in January 2023 of the important "[Nuclear Weapons: NNSA Does Not Have a Comprehensive Schedule or Cost Estimate for Pit Production Capability](#)," GAO-23-104661, Jan 12, 2023. As many of you know the cost and schedule estimates in that report were made obsolete just a week after the report's publication by DOE's [announcement](#) that a major subproject in LANL's pit production capital portfolio would be delayed four years (our [press release](#) on the subject). Further anticipated delays at LANL were announced in the budget request, which followed in March 2023. So the "year in pits" began with a bang.

- **Shocking schedule slippage at LANL was announced.** Just over the course of 2023, the reported anticipated schedule for reliable war reserve (WR) pit production at LANL slipped 3.5 years (4Q 2028 to 2Q 2032, the latter being the new date for the final CD-4 for LAP4). Altogether, reliable LANL production has slipped 6 years from the original claim and requirement for 30 pits per year (ppy) by 2026. At SRS, the anticipated milestone dates (both for CD-4, and for production) have not (yet) shifted from the optimistic ends of the windows estimated in 2017, 2021, and 2023. (NNSA has always said 2030 was never a realistic date for 80 ppy production.)
- **Further significant but unquantified schedule slippage and cost growth was announced as possible at both sites.** Schedules (and the associated capital costs) could lengthen and increase dramatically, as NNSA notes in its FY24 budget request project data sheets for LAP4 and

SRPPF. Where schedules slip, not just capital costs but also cumulative operating (program) costs will also increase, particularly at LANL where program costs are very high. At LANL, every year of delay in production start-up will add more than a billion dollars in start-up costs, beyond those tallied in line item construction.

- **The required production capacities and reliabilities at each site is still not publicly known.** There remains public uncertainty about the planned production capacities and required reliabilities at both sites. In other words, the respective objectives and scopes of pit production efforts at the two sites are still undefined. There may be a silver lining to this in that the projects can be re-scoped as conditions and requirements change. If, for example, it turns out that LANL production need not be as great or reliable as currently demanded, the LANL effort can be downscoped. But these possible changes -- both upscaling, and "exit ramps" -- should be spelled out and costed. In February, Administrator Hruby announced that SRPPF production would need to be "more than 50 ppy" for some period, and as GAO noted in August the project was partially re-scoped, but the planned and latent capacity of SRPPF -- or of PF-4 for that matter -- is not publicly known.
- **At LANL, the scope of the infrastructure work directly required for pit production, its duration, and its cost remain unbounded.** This goes beyond "scope creep" -- no scope has been defined. One result is that Congress has an artificially low impression of what LANL pit production will cost.
- **The safety status of PF-4 and supporting facilities remains unclear at best, and will remain so for the duration of pit production.** This is due in part to the age of PF-4 and its systems on the one hand, and the rolling wave of facility replacements on the other hand. PF-4, and the suite of facilities to be used to support pit production, along with the site itself, were not designed or chosen (in the case of the site), for pit production. As NNSA has reported to Congress, PF-4 was designed for approximately 100 staff. It now houses more than 1,000, and 24/7 work is required not just for completion of construction and equipment installation but also for any production at 20 ppy and above.
- **At LANL, logistical problems remain far from resolved.** These range from transport of employees and contractors to and from and within LANL, to housing for construction and operations labor, to the acquisition of laydown areas, to the planned creation of a local low-level nuclear waste disposal site, and more. Acquisition and retention of sufficient skilled labor continues to be "a work in progress."
- **Anticipated costs have risen fast, especially at LANL, and are likely to rise higher.** In 2017, a 30 pits per year (ppy) capacity at LANL was said to cost \$3 billion (B) to install and start up (\$3.7 B in today's funds). This was for "Plutonium Sustainment," apparently similar to "Base" today. Today, "reliable" 30 ppy start-up will cost about \$20.9 B, including sunk costs, 5.7x as much (from [here](#).) (An "apples to apples" comparison, omitting the "30R" subproject and one year of startup operating costs, would be about 4.8x.) At SRPPF, construction and start-up were estimated at \$6.7 B (in today's dollars). Now we [estimate](#) SRS startup, including sunk costs, at \$17.3 B (through FY36), 2.6x as much. (We believe SRPPF is being scoped as a 80 ppy or greater facility as in 2017, making this an apples-to-apples comparison, but this capacity has not been made explicit.)
- **There is still no comprehensive, integrative plan that includes schedules, scope, costs, milestones,** let alone a dynamic planning model that can respond to changing circumstances.

- **At LANL, there is still no certainty as to how long PF-4 will last or what will be done when PF-4 is no longer capable of some or all of its current missions.** A 2021 NNSA report to Congress said it might last to 2045. Neither is there any clarity as to what will happen to pit production at LANL and SRS when PF-4 concludes its pit production role. Will LANL build (a) new Hazard Category II plutonium facility (ies), and if so where, when, for what purposes and capacities, and at what cost?
- **In the absence of warhead cost data, there is still no way for Congress and the DoD to assess the value proposition for the W87-1 warhead.** The anticipated cost of pits for the W87-1, from whatever source, easily exceeds the balance of all other W87-1 costs. Including sunk costs since 2019, start-up costs, and construction, LANL pits will cost roughly \$100 million (M) each. Including post-startup operating costs only, LANL pits will still cost several multiples of SRS pits, due in part to the extensive personnel needs of LANL's 24/7 operations. A new W87-1 AoA is needed that examines the timing of the W87-1 LEP and the provenance of its pits, as well as the larger question of whether to MIRV Sentinel and whether it might be cost-effective and adequate to use only existing W87-0s to arm Sentinel. Stretching out the W87-1 program or postponing it indefinitely could save from circa \$20 billion (no LANL pits, truncate the LANL pit effort to R&D and training only) to circa \$50 billion (terminate or delay the entire W87-1 for the foreseeable future, continue SRPPF).
- **The partially-revealed cost overruns in the Sentinel system that have triggered Nunn-McCurdy review cannot be properly understood or quantified without including the warhead component of the Sentinel system, and within those warheads, the pits.** The long-lived, higher-capacity SRPPF will be needed regardless -- it is the early-time LANL pit capability which is in question. Without the immediate W87-1 pit requirement, it appears that the LANL program is early-to-need and not cost-effective.
- **The as-yet-unknown anticipated schedule delays in the Sentinel system raise the question of how much MIRV capability and by when is really "needed," and how this relates to pit production.** The arms control potential of not MIRVing Sentinel should be closely examined. Production delays can be opportunities for peace, stability, and disarmament. The administration should consider making lemonade from LANL's problems especially, given that they are more severe and LANL's capability, should it materialize, provides less (or no) long-term value.
- **The apparent rising cost of the civil works involved in Sentinel raise the question of whether upgrading all 450 silos is desirable.** This is another opportunity staring us in the face.
- **We now see even more clearly that pit production at LANL is being managed as a hodgepodge of programs and projects, under a variety of authorities.** The huge cost and schedule overruns observed are symptoms of strong project headwinds, in part due to this management situation, and point to the likelihood of further problems ahead.
- **This year, the reality of competition for scarce talent and supplies for pit production became more explicit.** How much could the permanent pit production capability at SRS be aided by truncating the LANL effort and directing talent to the permanent pit production site? What steps should NNSA take at SRS if it wanted to assure success there? Building two factories in parallel does not seem like the way to do that. *Nota bene*, full SRPPF capacity does not have to be *used*.

- **Interest payments on the federal debt are now rising rapidly, comprising a large new national security reality.** The U.S. has now fully entered a fiscal crisis, which will of necessity become a political and economic crisis sooner rather than later. NNSA needs to articulate a "Plan B" now, as Everett Beckner advised.
- **The Congressional Commission on the Strategic Posture of the U.S. gets policy exactly wrong.** The Commission sees Russian martial, economic, and political strength, along with a rising China that is building up its nuclear armaments, and concludes that U.S. modernization efforts must be redoubled. The opposite conclusion is better supported: the U.S. cannot keep pace in an arms race with these two states, if we help stimulate such a race. We should not do so. We are risking destroying ourselves from within while stimulating greater dangers from without. Among other misjudgments, the Commission underestimates the barriers to rapid U.S. armaments growth.
- **All in all, the rapidly-changing context of all these decisions behooves us to keep options open for negotiation, stability -- and yes, disarmament.** As we will sooner or later see, there is no other rational option. The present debate in Washington is distorted by lack of alternative voices as well as by the for-profit nature of the weapons industry. We all want to have meaningful careers we can be proud of, but the huge flows of money available in the defense world create social environments and career "echo chambers" that can cloud both our policy and career judgments. It can be difficult to change our views, or change careers, but the *force majeure* changes that are coming may make it easier for us to change, especially if we don't over-commit in the wrong direction, as the program of record does, or even more so as the Congressional Commission would have us do.

Thank you for your attention and very best wishes,

Greg

**Postscript:** I hope you will do whatever you can to end the slaughter in Gaza, in accordance with the [provisional measures](#) adopted by the International Court of Justice and more broadly, that those you work for will not support committing military forces to the expanding war in the Middle East, which as we see this afternoon may be imminent. U.S. forces simply should not be there, in the region. Tactical "victories," if any should occur, will be strategic losses.

Our views on Ukraine fiasco are summarized on [this page](#), which we update almost daily with fresh analyses from around the world.

We urge no funding or support for either of these conflicts, which we believe are badly weakening the U.S. internally, and externally in the world's eyes -- in addition to the tens of thousands of precious lives being lost, not to mention the millions here at home whose prospects are being abridged by the federal government's excessive military commitments.