Prepared remarks for a panel discussion at the National Press Club by Greg Mello, Los Alamos Study Group, 11/13/24 (lightly edited May 12, 2025)

NNSA's plutonium pit production program is as big, in constant dollars, as the entire Manhattan Project. It is one of the very largest "gigaprojects" underway in the United States. The program is not going all that well and it deserves a lot more attention from Congress and the public.

We propose that NNSA build and operate one pit manufacturing facility located at the Savannah River Site (SRS), instead of attempting to do so at two sites.

We believe unchangeable realities and fiscal *forces majeure* will cause NNSA to sooner or later operate only one pit facility in any case, the one at SRS.

In the meantime, attempting to build and operate two industrial facilities – as opposed to one industrial facility and one training and demonstration facility – is already having negative national security impacts, and is otherwise harmful.

It cannot be stressed enough that federal decisionmakers in Washington cannot make successful policy that runs against the grain of realities on the ground. Congress and the White House cannot re-draw the maps and change topography, geology, and human geography with the stroke of a pen – for example, by signing a Nuclear Stockpile Memorandum or passing a law. Neither can the federal government necessarily gin up the trained, enthusiastic workforce needed for a new arms race on an arbitrary schedule, especially while also trying to rebuild U.S. manufacturing and infrastructure overall. Choices have to be made.

One of our themes today is that the NNSA production complex is not a machine that can be run at a higher speed than the speed at which it is running right now. There will be no "heroic mode of production." Neither will there be a "whole-of-government," let alone "whole of society," effort to upgrade the U.S. military and nuclear arsenal. Based on our decades of observation and engagement with NNSA and its predecessor DOE Defense Programs, we believe any plan to modernize or produce significantly more warheads and delivery systems than at present risks collapse of the enterprise. Indeed, some recent plans have not been realistic, as is being discovered in the case of Sentinel and in the budgets and schedules for NNSA's largest acquisition projects.

Specifically, we believe industrial pit production at LANL will be found impractical, sooner or later.

There are legal, practical, environmental, foreign policy, fiscal, and national security arguments in favor of our approach to pit production.

Legally, last year a federal judge in South Carolina ruled, correctly in our view, that when Administrator Hruby's predecessor shifted policy from a single pit production site to two, she violated the National Environmental Policy Act (NEPA). Under the two-site paradigm, this procedural mistake cannot be corrected without damaging either NEPA on the one hand, or preparations for pit production

at SRS on the other. NNSA demanded the former, and got it.

It could have been fully cured by a decision to produce pits at SRS alone, apart from a *de minimis* number of pits produced at Los Alamos National Laboratory (LANL) for technology preservation, development, and training purposes.

Defendants are [were] trying to prevent NEPA from realizing its statutory purpose, namely to decrease environmental impacts and fiscal waste. Plaintiffs are [were] trying to drive all pit production to a politically-favored location, i.e. LANL, and to thereby cripple NNSA's ability to make pits -- which necessarily creates a need for two pit factories, with more than twice the environmental impact of one, accomplishing nothing.

Meanwhile, there is no comparative environmental impact analysis of pit production at LANL, contrary to NEPA. (What analysis there is assumed the existence and operation of a major new plutonium facility at LANL which was never built and which cannot be built for geotechnical reasons.) There *is* such a comparative analysis for pit production at SRS, provided SRS were the sole production location.

From the business perspective, the LANL site and the old plutonium facility there ("PF-4") in which the plutonium parts of pits are to be made are encumbered by ineluctable problems, none of which are present at SRS to anything like the degree they are at LANL.

This was also NNSA's formal conclusion in 2017, when two-site production and the use of LANL's PF-4 for enduring pit production were formally rejected in a business case analysis (the "analysis of alternatives"). There is no NNSA business-case study supporting pit production at LANL, or supporting a two-site production plan.

LANL's pit problems include:

- Access to the site occurs via a limited road network which basically cannot be expanded or widened. LANL is accessed by three roads only, two of which are narrow and mountainous. SRS, by contrast, is accessed by 5 or 6 roads. Attempts at mass transit for LANL commuters remain very limited and are in any case utterly impractical for LANL's thousands of commuting workers. There is no practical cure to these problems that is compatible with LANL's location vis-à-vis its workforce, its need for physical security, and the geography of the site. Thom Mason has said that LANL lies "at the end of the world's longest cul-de-sac." For thousands of workers, that is not a joke.
- LANL lacks several thousand parking places. There is neither the intent nor the real estate available at LANL to provide them. Neither is there the road capacity to serve them.
- Housing options in Los Alamos County are very limited, with no significant change in sight. The NNSA Field Office Manager said Los Alamos County needs an additional 10,000 housing units, more than double the present number (8,149 households as of 2022, from the LAC Affordable Housing Plan). It is infeasible to double the population of Los Alamos County to support LANL growth. The topography will not allow it, even if local politics did, which is unlikely.

- Quality of life in Los Alamos, upon which LANL recruitment and retention, especially for scientific talent, closely depends, is falling. When the sum of the impacts of LANL pit production is fully apparent, it will be too late.
- The unfixable housing/transportation/labor conundrum is occurring in a state which is consistently rated as the worst state in which to raise children, with the nation's worst educational system, with tremendous inequality, poor access to health care, and high rates of addiction and violence. LANL never created economic development to speak of in its laborshed, which is instead marred by high inequality and poverty. This is now a problem for LANL's own labor supply and its ability to retain staff. The closest university is 100 miles away. There are essentially no local technology or manufacturing sectors. Civil society structures and governance are weak at both the state and local levels. New Mexico politicians tell themselves LANL appropriations will create economic development. That will never happen. For Northern New Mexico to develop socially, and to thrive, something like the opposite of LANL-centric approaches are necessary.
- Long-distance commuting incurs large and increasing climate impact and resource use. LANL is the opposite of "green."
- Nearby labor markets are inadequate, so very long commutes are necessary for hundreds of workers, with a few traveling up to 120 miles each way; hundreds travel 100 miles each way.
- LANL has an inadequate electrical power supply for its planned growth, according to NNSA.
- The water supply in the region is challenged by population growth and climate change. The latter is creating a fluctuating but permanent megadrought and chronic overall water shortage.
- PF-4 is located only 3,000 feet from residences and is overlooked by a mountain from which man-portable projectiles could be launched by terrorists. The LANL site is fundamentally insecure.
- PF-4 is adjacent to a major environmental cleanup priority at LANL (Material Disposal Area C), which will complicate logistics and traffic on the road leading to the plutonium facility. The very large Material Disposal Area G lies on the same road, which will also require some degree of remediation.
- PF-4:
    - is already 50 years old;
    - was built for R&D, not production;
    - is already housing 10 times the staff originally envisioned;
    - is the home of a half-dozen other national security missions which cannot be paused;
    - does not meet DOE nuclear safety standards or for that matter even commercial fire code standards; and
    - is situated on a narrow mesa with little or no space for expansion.
- Because of PF-4's small size, current plans envision two production shifts at LANL for some years if not permanently. The required number of full time staff for LANL pit production

(4,105; this estimate is reportedly decreasing) is twice that of SRS (2,015), for 60% fewer pits (~41 vs. ~103 ppy on average, or 30 vs. 84 under the "nominal 30" paradigm). On a per-pit basis, LANL pits will cost 6-7x what SRS pits are projected to cost if all Plutonium Modernization program costs are included, or ~4-5x using forward costs only. We believe LANL pits will cost, assuming all goes well, $77 to $89 million each through 2039, if the LANL program is fully successful and LANL production lasts that long.

- The SRS facility will be adequate to produce all necessary pits. LANL pit production will ***not*** be adequate to sustain any foreseeable stockpile at this time. Therefore, if LANL is a pit factory, two factories will be necessary. If SRS is a pit factory, it alone will suffice, not just for a few years but for the foreseeable future.
- PF-4 is a limited life facility which should be preserved rather than run into the ground. It would be difficult if not impossible to replace PF-4 at Los Alamos. Should the aging PF-4 fail in any key respect, not just pit production but ***all*** plutonium missions at LANL could be interrupted indefinitely. NNSA understand this very well, which is why construction of the SRS facility will proceed.
- Meanwhile, the LANL pit mission damages LANL as a research and development site and poses problems for staff retention in non-pit missions.
- Having two production sites creates a delaying competition for limited design talent and scarce equipment such as glove boxes.
- LANL pit production is not going to be resilient because of these and other challenges. This will add risk to the entire pit program as well as to other LANL missions. Its contribution to resilience is likely to be negative.

From the environmental perspective, the SRS site has fewer natural hazards -- and more important, incurs fewer environmental impacts. SRS does not have LANL's degree of abiding wildfire risk, has no issues with Native American sacred sites, has no comparable seismic issues, and no geotechnical issues of note. SRS has hurricanes, but SRS has just come through a major hurricane with essentially no damage to its nuclear facilities. The SRS pit facility is 10 times farther from the site boundary than is the case at LANL.

Critically, LANL pit production's impacts on traffic, on the housing and local labor markets, on electricity transmission, on the Native American sacred landscape, are heavy.

From the foreign policy and arms control perspective, a more measured approach to pit production would signal a willingness to negotiate limits to nuclear arms while preserving the ability to maintain the entire US arsenal. (Which is not our preference, as you know.)

Early-to-need pit production is gratuitously provocative on the one hand and because it is so wasteful, smacks of desperation on the other hand. One doesn't know whether to laugh or cry. Creating an adequate capacity to make pits a decade from now is neutral as far as actual future pit production goes. It gives time for negotiations.

It should be obvious that the U.S. cannot keep pace with a combined Russia and China, if the latter two states are stimulated to produce nuclear weapons by what they see as a U.S. threat. Misguided,

belligerent U.S. policies have already stimulated Chinese expansion, which is too bad but does not in any way affect the credibility of the U.S. deterrent.

Often when "deterrence" is spoken of, "compellance" is what is meant: the ability to help influence foreign policy and military outcomes with the implicit threat embodied in nuclear weapons. For reasons that nuclear weapons cannot fix no matter how many, and how many kinds, the U.S. has, the U.S. is losing compellance. It was always more mirage than reality. The U.S. must now take its place in a multipolar world. Absent acceptance of this reality -- which cannot be changed by any amount of military or nuclear spending or economic sanctions or anything else -- the contradictions and challenges in U.S. polity, economy, society, and environment cannot be successfully addressed.

Fiscally, having two pit factories instead of one doubles the remaining acquisition cost, using NNSA's 2024 budget request. In all likelihood, that request understates the costs at both LANL and SRS.

Having two sites roughly triples the ultimate operating cost of pit production, which is why NNSA is unlikely to operate both sites for long.

Using LANL instead of SRS pits will drastically increase the price of warheads using LANL pits. The cost of producing early-to-need pits at LANL is so great that Congress is avoiding even looking at it.

We estimate the full acquisition cost of pit production at about $44 billion, equally divided between the two sites, or $47 billion if all the early LANL investments identified by GAO are included. Such huge projects seldom turn out well, especially when detailed internal studies have advised against proceeding with them, as is the present case. LANL pit production will cost the equivalent of several submarines, or (which would be our preference) the funds saved by its early termination would be enough to pay for civilian projects of enormous benefit to society.

In terms of national security overall, the combination of factors presented here argue that preparations for sole-site production at SRS, should production be needed, will be the best for the nation. The level of actual production at that fully-adequate facility can be adjusted in response to stockpile needs as they are perceived starting a decade from now.

National security is not a function of a single budgetary account or set of interests but includes all the elements that make the country strong, which is why the big decisions about national security are decided by an elected civilian president and his Senate-confirmed appointees, not by the military and certainly not by defense contractors.

Right now no elected or appointed government official is going to set the U.S. on an irreversible path to nuclear disarmament. So NNSA will build an adequate pit facility, and they will do so as expeditiously as possible. The only such adequate facility being built today is at SRS.

We may forget that there is no defense against nuclear weapons. It would take only a very few nuclear weapons to completely destroy the United States and everyone in it. It is therefore prudent to not stimulate a nuclear arms race, and to take every possible step to avoid one. Delaying early-to-need pit production signals U.S. reluctance to enter into an arms race, and that is what we propose.

Finally, LANL pits are destined for the Sentinel missile system specifically, where they are not

actually needed except to provide the option of placing multiple warheads on each missile. We believe the Sentinel system overall, and even more so the option of deploying multiple-warhead deployment on it, are counterproductive to US security.

For these reasons, NNSA should continue to build the capability for single-site production at SRS and promptly terminate its plans for industrial pit production at LANL while retaining LANL for R&D and training purposes.