



Los Alamos Study Group

Nuclear Disarmament • Environmental Protection • Social Justice • Economic Sustainability

Presentation

to the

Radioactive and Hazardous Materials Committee of the New Mexico Legislature

August 15, 2018

Greg Mello, Executive Director, Los Alamos Study Group

Production Expectations vs. Site Realities and Worker Safety at Los Alamos National Laboratory (LANL): A Recipe for Regional Decline

Summary

Proposals to expand nuclear materials missions at LANL run afoul of basic realities at the site and of LANL as an institution. In pursuit of these expanded missions, corners are already being cut that would affect worker safety and operational success. The old tug-of-war between worker safety and the environment, and production expectations, has begun again.

LANL's planning and engineering for expanded plutonium missions have been unsound and marked by failure since the 1980s. They continue to be so today for reasons largely independent of particular contractors and managers. Assurances which cannot be enforced by the state – and none of LANL's can – should not be accepted at face value. Federal oversight and accountability are thin at LANL; external regulation is almost nonexistent. New mechanisms of federal and state accountability are badly needed.

National production mandates for plutonium warhead cores (“pits”) – arbitrary, since they are not necessary to support the US nuclear arsenal – are now codified by statute. They are virtually certain to conflict with operational safety at LANL. They would also add to the site's environmental burdens, as well as conflict with existing missions. All the ingredients for fiasco (and for some, tragedy) are again present – as they have been at LANL, repeatedly.

Northern New Mexico would not benefit from industrial plutonium missions under any scenario. Industrial and governmental activities which require or benefit from relative isolation invariably cause regional decline. The mirage of “jobs” inevitably turns to economic and social development dust, even though a few people are employed. The causes of this are more-or-less universal and well-understood.

In Washington, increased funding for nuclear weapons (and hence New Mexico's labs), along with an expanded pit production mission at LANL, may require the New Mexico delegation to go along with (or moderate their opposition to) consolidated interim storage of spent nuclear reactor fuel in southern New Mexico. Both proposals are examples of federal/contractor “pollution shopping.” Many powerful parties find New Mexico to be an attractive, sparsely-populated, politically-weak “option” for industries that amenity-oriented states with positive reputations which they seek to protect would reject in a heartbeat.

At LANL, a powerful confluence of contractor greed, pork-barrel politics, and Cold War ideology, operating through long-obsolete, unaccountable, and secretive management structures with a slick public relations veneer, is in effect asking Northern New Mexico to double down on a Cold War past that has served the region poorly. We are in a new historical moment, one not of our choosing but one which has opportunities as well as challenges. LANL is heading into the past. New Mexico can't afford to do that.

Chairman Steinborn and members of the Committee:

Thank you for the opportunity to speak with you today. Please accept if you can my apologies for not providing a copy of my presentation in advance. I grossly misjudged the time needed for preparation and have not even now completed it. I will have to send a more complete version to Ms. Casebier tonight or tomorrow.

I will begin with an overall summary of my concerns, which is the top item in your packet, and then will delve somewhat more deeply using slides for most topics, hard copies of which are in your packet for future reference, as we will only be able to touch upon some of the details.

I am looking forward to your questions and will try to answer them to the best of my ability.

Although I will be critical of Los Alamos National Laboratory (LANL) and other institutions, I mean no lack of respect toward individuals. I think it is our common experience that bureaucracies and corporations are, in the common way of putting it, “faceless,” and generally less astute, selfless, and wise than the people in and around them.

This bears on my central point today. LANL and the federal entities which fund and direct its mission – namely the Department of Energy (DoE), Department of Defense (DoD) through the Nuclear Weapons Council (NWC), and the National Nuclear Security Administration (NNSA) – have agendas which are not designed to serve the region or New Mexico, which have hurt the state and its people, and which are poised to hurt us still further.

Our topics will be, with approximate time allotments, as follows.

(With slides today)

1. LANL production mandates, current and proposed (2 minutes)
2. NNSA’s 2017 and 2018 pit production analyses (2 minutes)
3. Realities of the LANL site (3 minutes)
4. LANL worker safety: on a collision course with powerful other agendas (4 minutes)

(Without slides today, following shortly)

5. Environmental liabilities: decreasing, or increasing? (2 minutes)
6. A recipe for regional decline (3 minutes)
7. What can be done? (3 minutes)

Thank you for your attention.

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Plutonium Pit Production Analysis of Alternatives (AoA) Results & Next Steps



November 2017

Annotations by Greg Mello, Los Alamos Study Group, 8/15/18



NATIONAL NUCLEAR SECURITY ADMINISTRATION OFFICE OF DEFENSE PROGRAMS



Pit Production Strategy and Progress

- To sustain plutonium infrastructure and establish capabilities to resume production of war reserve pits, NNSA is:
 - Investing over \$1B from FY19 – FY23 to sustain current operations and achieve 30 pits per year (ppy) production capability by 2026
 - Investing over \$2B in construction projects to replace CMR capabilities and reconfigure space to support production
 - Analyzing options, consistent with DOE O 413.3B, for long-term infrastructure needs to support the 80 ppy requirements and other mission needs

- Progress:
 - Safely resumed operations in PF-4 after a 3-year operational pause
 - Began construction activities for the first two CMRR subprojects:
 - ❑ RLUOB Equipment Installation Phase 2 (REI2)
 - ❑ PF-4 Equipment Installation Phase 1 (PEI1)
 - ❑ Both are on schedule and under budget
 - Fabricated two development pits in FY17; will build four development pits in FY18
 - Completed the Plutonium Pit Production Analysis of Alternatives in FY17



Pit Production AoA Scope and Assumptions

- The AoA assessed alternatives to meet the sustained production capacity of no fewer than 80 ppy by 2030
- AoA Assumptions, Facts and Constraints
 - LANL is the Plutonium Center of Excellence for the enduring R&D mission
 - Capabilities installed under CMRR and Plutonium Sustainment remain in PF-4 and RLUOB
 - Operations in PF-4 to meet the 30 ppy goal in 2026 will continue and PF-4 will be capable of an estimated 30 ppy after the upgrades *(not 80 ppy)*
 - The threshold requirement is 80 ppy at high confidence, due to pit aging estimates and planned production schedules to meet military requirements
 - Future pits will be produced using current processes and technology



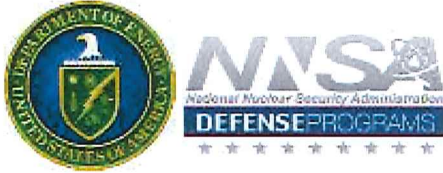
Evaluation Criteria and Other Considerations

Evaluation Criteria:

- Cost, schedule, risk
- Ability to support objective requirements for NNSA and DOE missions
- Capacity for pit reuse operations simultaneous with pit remanufacturing
- Ability to accommodate surge capacity
- Synergy of plutonium science, metal preparation, and production
- Ability to accommodate future changes in mission requirements
- Useful lifetime (e.g. of PF.4)

Other Considerations:

- Qualified workforce & Expertise / Availability of workforce
- Design Agency (DA) and Production Agency (PA) Colocation / Resiliency
- Environmental
- Transportation
- Mission Impact



AoA Results: Two Preferred Alternatives

Use largest cost + latest schedule for greatest accuracy. Both are likely low-balled.

1. Refurbishing and repurposing facilities at the Savannah River Site
 - Cost range: \$1.4-5.4 B
 - Schedule range: FY24-31
 - Risk: Reconfiguring a partially completed facility for a new mission in a new location

2. Additional footprint to accommodate pit production requirements at Los Alamos National Laboratory
 - Cost range: \$1.9-7.5 B
 - Schedule range: FY27-33
 - Risk: Less favorable cost and schedule for achieving a sustained 80 ppy facility



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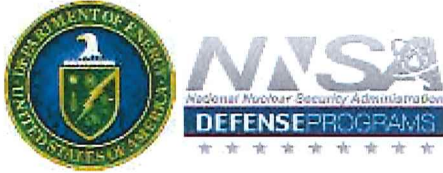
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 - Risk: Less favorable cost and schedule for achieving a sustained 80 ppy facility

- Conduct detailed engineering analysis (EA) for both alternatives to inform the selection of a single alternative and support conceptual design
- The EA is analyzing pre-conceptual design options at the two sites and will provide an engineering feasibility report
- The results of the EA will inform conceptual design for the Deputy Secretary's approval of Critical Decision (CD)-1 (Approve Alternative Selection and Cost Range) in accordance with DOE Order 413.3B
 - Project baselines are not established until CD-2 approval (Approve Performance Baseline), which requires 90% design completion

Additional study now required by 2019 NDAA.

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BACKUP

41 Options Evaluated Resulting in Detailed Analysis of 5 Alternatives

Production Approach	Capabilities in PF-4	Capabilities Outside PF-4	41 Alternatives Evaluated			
			5 Options (<i>shaded green</i>) Received Detailed Cost, Schedule and Risk Analysis			
0 - Status Quo	Pu Science and Cert + Metal Prep and 30 ppy		LANLO			
1 - Split Production	Pu Science and Cert + Metal Prep and 30 ppy	Production 50 ppy at LANL	LANL1-A (New)			
		Production 50 ppy at SRS	SRS1-A (MFFF)	SRS1-B (K-Area)	SRS1-C (WSB)	SRS1-D (New)
		Production 50 ppy at INL	INL1-A (FPF)	INL1-B (New)		
		Production 50 ppy at Pantex/NNSS	PX1 (New)	NNSS1 (New)		
	Pu Science and Cert + Metal Prep and other missions out	Production various ppy at new construction at LANL	LANL1-B (Aries and Pu238 stay)	LANL1-C (Aries stays, Pu238 goes)	LANL1-D (Aries goes, Pu238 stays)	LANL1-E (Aries and Pu238 go)
2 - Move Production and Metal Prep	Pu Science and Cert	Metal Prep and 80 ppy at LANL	LANL2 (New)			
		Metal Prep and 80 ppy at SRS	SRS2-A (MFFF)	SRS2-B (K-Area)	SRS2-C (WSB)	SRS2-D (New)
		Metal Prep and 80 ppy at INL	INL2-A (FPF)	INL2-B (New)		
		Metal Prep and 80 ppy at Pantex/NNSS	PX2 (New)	NNSS2 (New)		
3 - Move Production	Pu Science and Cert + Metal Prep	80 ppy at LANL	LANL3 (New)			
		80 ppy at SRS	SRS3-A (MFFF)	SRS3-B (K-Area)	SRS3-C (WSB)	SRS3-D (New)
		80 ppy at INL	INL3-A (FPF)	INL3-B (New)		
		80 ppy at Pantex/NNSS	PX3 (New)	NNSS3 (New)		
4 - Move Metal Prep	Pu Science and Cert + 80 ppy	Metal Prep at LANL	LANL4 (New)			
		Metal Prep at SRS	SRS4-A (MFFF)	SRS4-B (K-Area)	SRS4-C (WSB)	SRS4-D (New)
		Metal Prep at INL	INL4-A (FPF)	INL4-B (New)		
		Metal Prep at Pantex/NNSS	PX4 (New)	NNSS4 (New)		

- 36 of 41 options were eliminated from further consideration after the team developed floor space estimates and initial cost, schedule, and risk assessments

- Insufficient space
- High cost for support facilities
- Late to need
- Facility condition
- Mission disruption

This detailed analysis was ignored in the EA

Summary of Results

Does not include PF.4 replace/extend

Approach Alternative	Refurbishment		New Facility Construction		
	SRS MFFF	INL FPF	INL	SRS	LANL
CD-4 Cost Range (FY18\$B)	1.4 - 5.4	1.5 - 5.0	1.9 - 6.9	1.8 - 6.7	1.9 - 7.5
CD-4 Schedule Range	FY24 - 31		FY27 - 33		
80 ppy Schedule Range	<u>FY29 - 36</u>		<u>FY33 - 38</u> <i>very late</i>		
Risks	Potentially contentious state government				
	No experience with pit production				
	Delays in facility availability cause schedule delays				
	Potential structural issues with refurbishment				
	Change in safety basis from NRC to DOE				
	Organizational Interface - Not an NNSA Site (DOE-NE site)				
Opportunities	Ample space for future flexibility			Experienced pit production techs	
	Current NNSA production agency		Current NNSA production agency		
	NNSA Site Office		NNSA Site Office		

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Plutonium Pit Production Engineering Assessment (EA) Results

Kelly Cummins

Program Executive Officer for Strategic Materials

*Annotations by Greg Mello, Los Alamos
Study Group, August 14, 2018*

May 2018



NATIONAL NUCLEAR SECURITY ADMINISTRATION OFFICE OF DEFENSE PROGRAMS



Introduction

In accordance with the Nuclear Weapons Council Strategic Plan, NNSA will produce 80 WR ppy in 2030

- The 2018 NPR emphasizes the need for “*an effective, responsive, and resilient nuclear weapons infrastructure*” that can “*adapt flexibly to shifting requirements*”
- NNSA will produce an enduring 30 pits per year (ppy) in 2026 in Plutonium Facility (PF)-4 at Los Alamos National Laboratory (LANL) under all alternatives
contradiction
- The Engineering Assessment (EA) evaluated alternatives to provide an additional 50 ppy capability
- EA schedule estimates are **conservative**; NNSA will aggressively pursue risk reduction opportunities to meet this requirement
(unlikely)
- The Pu Pit Production EA is a follow-on activity to the Analysis of Alternatives (AoA) to support DOE and NNSA decision-makers



Plutonium Infrastructure Past & Present

- Throughout the Cold War, multiple facilities and sites supported defense plutonium missions
 - Rocky Flats (CO), Pinellas (FL), Savannah River Site (SC), Hanford (WA), Lawrence Livermore National Laboratory (LLNL) (CA), and LANL (NM)
- Currently, the sole U.S. pit production capability is located in LANL's PF-4, which is 40 years old and will be over 50 years old in 2030
 - NNSA continues to provide resources to maintain PF-4 in an operational condition
 - Replacement and/or life extension will be required in the future *Followed by replacement*
- The increased operating tempo will be a challenge and PF-4 is a single point failure for this and other defense plutonium missions
- At the Savannah River Site, a former plutonium production site, there is a new security category 1/hazard category 2 structure that no longer has a mission need



Analysis of Alternatives Results

- NNSA completed an AoA for plutonium pit production in October 2017 as required by DOE Project Management requirements (DOE Order 413.3B)
- The AoA assessed alternatives capable of producing 50 ppy (in combination with 30 ppy in PF-4) and 80 ppy (stand-alone) to meet the sustained production capacity of no fewer than 80 ppy in 2030
- 41 options were evaluated and 5 options were selected for detailed analysis
- Of those 5 options, 2 preferred alternatives were identified
 1. Refurbishing and repurposing facilities at the Savannah River Site
 2. Constructing additional facilities at LANL



Engineering Assessment (EA) Scope

- The EA analyzed 50 WR ppy capacity options to complement an enduring 30 WR ppy mission beginning in 2026 at LANL

- EA was completed by Parsons with plutonium expertise provided by a team of subject matter experts




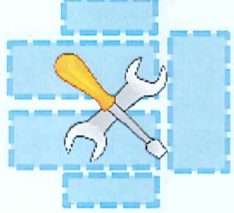
- It provides analysis related to
 - Cost
 - Schedule
 - Risk
 - Feasibility

- Four alternatives were evaluated
 - 1 alternative at SRS
 - 3 alternatives at LANL



Alternatives Assessed

All alternatives assume an enduring 30 WR ppy in PF-4 at LANL in 2026

Alternative	Additional PF-4 Scope for 50 PPY	Process Scope for New Space	New Process Space Size and Layout
<p>1-Modify MFFF at SRS with Production Modules <i>Install pit production equipment into the existing MFFF at the Savannah River Site to produce 50 ppy</i></p>	<p>None</p>	<p>Disassembly/Metal Prep Foundry Machining Assembly Aqueous Analytical Chemistry Material Characterization</p>	<p>65,721 ft² MFFF</p> 
<p>2a –Construct a Production Module at LANL – Production Facility Outside PF-4 <i>Construct a new production facility with 25,873 ft² of process space at LANL to produce 50 ppy</i></p>	<p>Aqueous</p>	<p>Disassembly/Metal Prep Foundry Machining Assembly</p>	<p>25,873 ft² 50 ppy Production Facility Module</p> 
<p>2b – Construct a Production Module at LANL – Production Capacity Split with PF-4 <i>Construct a new production facility with 18,488 ft² of process space and install additional equipment in PF-4 to produce 50 ppy with a split flowsheet between the facilities</i></p>	<p>Disassembly/Metal Prep Aqueous</p>	<p>Foundry Machining Assembly</p>	<p>18,488 ft² Production Module with Split Flowsheet</p> 
<p>2c – Use PF-4 as a Bridge Until Construction of Production Modules at LANL is Complete <i>Install additional equipment in PF-4 to produce 80 ppy <u>using 2 shifts while constructing at least 3 new production facilities with 23,370 ft² of total process space that will produce 50 ppy</u></i></p>	<p>Bridge (2 Production Shifts): Augment Production Capabilities in PF-4 (15 additional pieces of equipment) With Modules: Aqueous</p>	<p>Bridge: N/A Modules: Disassembly/Metal Prep Foundry Machining Assembly</p>	<p>23,370 ft² Multiple Production Modules</p> 



Cost and Schedule

- The most conservative schedule estimates to achieve 80 ppy extend beyond 2030 for all alternatives, but opportunities exist to manage schedule risk
- Cost and schedule ranges are for comparison purposes only and are based on Class 5 estimates (-20% to +100%) consistent with this phase of project definition
 - These are NOT baselined estimates, which will be set at Critical Decision 2 in 2022
- Schedule and risk distinguish the alternatives from each other more than does cost
- Schedule ranges reflect high-confidence estimates for construction completion, *not operation.*



Cost, Risk, and Schedule Comparison

These are not baselined costs or schedules and multiple opportunities exist to expedite the schedule with appropriate leadership direction

Alternative	Estimated Construction Range High End	Residual Risks	Estimated Construction Completion (CD-4) Range
1 – Modify MFFF at SRS with Production Modules	\$4.6 B	10 Opportunities 3 Moderate Threats	Jul. 2026 – Jan. 2030
2a – Construct a Module at LANL – Production Facility Outside PF-4	\$5.2 B	1 Opportunity 11 Moderate Threats	Apr. 2028 – Oct. 2031
2b – Construct a Module at LANL – Production Capacity Split w/ PF-4	\$4.4 B	1 Opportunity 11 Moderate Threats 1 High Threat	Mar. 2027 – Sep. 2030
2c - Use PF-4 as a Bridge Until Construction of Modules at LANL	\$5.8 B	1 Opportunity 19 Moderate Threats 3 High Threats	PF-4 Modifications – Nov. 2025 – May 2029 Modules – Jan. 2032 - Jul. 2035



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(Recipe for disaster) Schedule Opportunities

- NNSA can shorten the schedule several years through leadership direction **(NOT)**
- Several opportunities exist to shorten the **construction** schedule, including:
 - Working with Congress to secure a robust optimal funding profile
 - Using 2 shifts for construction and commissioning activities (the EA assumes 1 shift)
 - Tailoring processes by shortening review cycles and performing activities in parallel instead of in sequence
 - Managing scope to accelerate schedule
- Hot commissioning, qualification and ramp up to 50 WR ppy are assumed to take 5-10 years, but several opportunities exist to meet the 2030 date, including:
 - Applying lessons learned from reaching 30 ppy to reduce time to produce WR pits
 - Establishing an aggressive operational release plan
 - Leveraging LANL, regardless of option selected, to support workforce development
- Regardless of the site selected for the 50 ppy mission, NNSA could maximize pit production in PF-4 to the extent practicable while simultaneously pursuing construction at either site
 - This would reduce schedule risk but also introduce additional operational risk from double shift work

NNSA remains committed to producing 80 ppy in 2030 and will aggressively pursue risk reduction opportunities to meet this requirement



Lifecycle Costs (LCC)

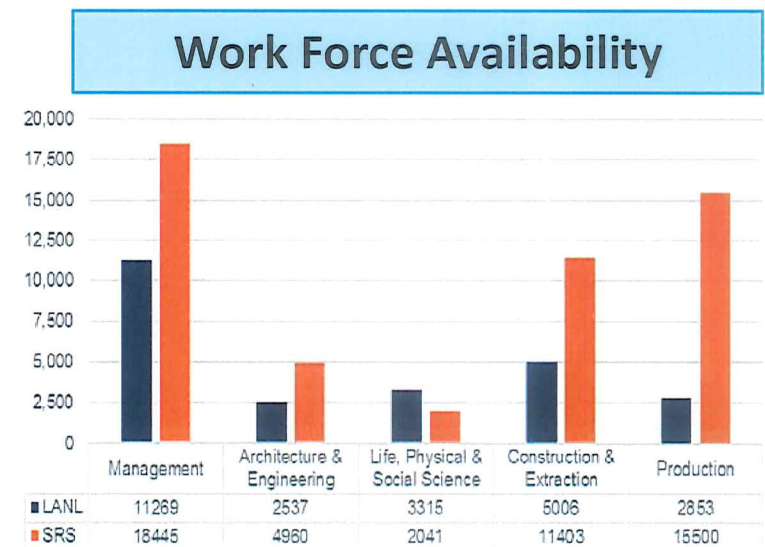
Alternative 1	Alternative 2a	Alternative 2b	Alternative 2c
\$27.8B	\$18.8B	\$14.3B	\$14.8B

- Pit production activities at two sites would result in ^{much} higher LCCs
- LCCs do not include the future cost of PF-4 replacement or life extension ^{necessary}
- LCCs costs do not include offset to Alternative 1 (MFFF) by reducing overall nuclear complex LCCs (e.g., consolidating K-Area Material Storage Facility activities in MFFF and enabling DOE/NNSA to exit an old facility)
- Path forward should not be decided solely on lowest cost, which could constrain pit production to a single facility at a single site
- The alternative with the lowest LCC ^(i.e. 2b?) would not meet the Administration's stated policy for "*an effective, responsive, and resilient nuclear weapons infrastructure*" that can "*adapt flexibly to shifting requirements*"



Workforce Analysis

- LMI studied the demand for pit production personnel
 - Manufacturing an additional 50 ppy at LANL requires between 350-500 additional production staff
 - Manufacturing 50 ppy at SRS requires 722 production staff
- LMI translated LANL job descriptions to Bureau of Labor and Statistics Standard Occupational Classifications (SOC) to use census data to evaluate supply in a 50-mile radius
- Both locations could support increased staffing; however, there are more workers available in the SRS locality in 4 of the 5 job classifications studied
- Cost of living and average age of the workforce are both lower near SRS when compared to LANL



Source: U.S. Census 2016 American Community Survey.



Recommended Alternative

- The best strategy for achieving 80 WR ppy in 2030, is to:
 - Repurpose MFFF to produce 50 WR pits
 - Maximize pit production in PF-4 to extent practicable
- This approach:
 - Capitalizes on enduring 30 WR ppy capability in PF-4, which can increase with 2 shifts
 - Retains LANL as the Plutonium Center of Excellence
 - Embraces the Administration’s policy for “an effective, responsive, and resilient nuclear weapons infrastructure” that can “adapt flexibly to shifting requirements”
 - Executes the lowest risk alternative with shortest construction schedule; while utilizing PF-4 to build ahead as much as possible
 - Provides the Nation with an appropriately tailored robust, redundant, and resilient pit production capability

I.e. do not build more production facilities at LANL.

EXECUTIVE SUMMARY

The National Nuclear Security Agency (NNSA) requires a sustained production capacity of no fewer than 80 pits per year (ppy) by 2030. Since 1989, when the Rocky Flats Plant was closed, the nation has had little capability to manufacture new plutonium pits that can go into the stockpile, called War Reserve (WR) pits. A limited capability of 10 WR ppy was exercised at Los Alamos National Laboratory (LANL) in the early 2000s, but no WR pits have been produced since 2012. At this time, NNSA is developing and installing capability at LANL in Plutonium Facility (PF)-4 to produce 30 ppy by 2026. The Analysis of Alternatives (AoA) for meeting pit production requirements, completed in September 2017, assessed alternatives to close this identified mission gap in the NNSA's pit production capability. The AoA is a post Critical Decision (CD)-0, pre-CD-1 activity to identify a preferred alternative for conceptual design in preparation for the Deputy Secretary of Energy to make a program decision at CD-1.

The AoA analysis resulted in the identification of two preferred alternatives, with a recommendation to conduct engineering analyses and pre-conceptual design activities on both alternatives in support of conceptual design for CD-1. The refurbishment and repurposing of the Mixed-Oxide Fuel Fabrication Facility at Savannah River Site has the most favorable cost and schedule for achieving a sustained 80 WR ppy production rate, but introduces the qualitative risk of reconfiguring a partially completed facility for a new mission in a new location. The other recommended alternative, new construction of an 80 WR ppy facility at LANL, has the lowest qualitative siting risk, but less favorable cost and schedule, and introduces risk associated with new construction of hazard category (HC)-2 facility space that includes regulatory milestones historically difficult to navigate in early design (e.g., NQA-1 and NEPA). The identification of two preferred alternatives for more detailed engineering analysis and conceptual design has precedence within the department to be addressed outside of the AoA process.

The 80 WR ppy requirement was validated prior to the start of the AoA by the Nuclear Weapons Council based on pit aging and directed military requirements. The pit production requirement is an annual "at least" production rate derived from the delivery schedule for certified, life extended nuclear weapons to the Department of Defense (DOD). Consequently, a sustained production rate of 80 ppy must be achieved with high confidence. In the context of the AoA analysis, high confidence was defined as a greater than 90% probability of achieving the required throughput (9 out of every 10 production years, the facility is expected to produce at least 80 WR pits). This constraint differs significantly from the Plutonium Sustainment Program's 30 WR ppy annual production goal. The 30 WR ppy capability is an "on average" requirement, defined as a 50% confidence in the production throughput.

The AoA Team evaluated functional and process requirements for achieving the 80 WR ppy mission requirement. These requirements informed the development of equipment and processing space estimates, which were key components of the analytical conclusions and the cost estimate ranges produced by the AoA. In order to adequately develop the equipment and space estimates, the AoA team developed a stochastic discrete event simulation of the pit production process to project pit manufacturing throughput for a given equipment set. The final equipment set was developed by adjusting equipment as needed to remove production- and logistics-based bottlenecks to ensure an 80 WR ppy throughput at high confidence. Following verification and validation of the model and the resultant equipment set by the AoA team production experts, subject matter experts estimated space needs based on analysis of analogous projects. Space needs were developed for both HC-2 and non-HC-2 functions,

using a best value approach by moving support functions to non-HC-2 space whenever possible. Two key outcomes resulted from the equipment and space analysis:

- First, the equipment set for 80 WR ppy does not fit in the modular layout envisioned at CD-0 for the initial modular building strategy proposal.
- Second, the difference between a 50 WR ppy equipment set and an 80 WR ppy equipment set is within the range of error and, therefore, did not have an appreciable effect on the determination of the preferred alternatives. 50 ppy capability was evaluated in the context of splitting production capacity by continuing to rely on PF-4 for 30 ppy and producing 50 in another facility.

The AoA Team assessed a range of options that included both building new and refurbishing existing facilities to achieve the required annual production rate while not interfering with the mission objectives for the Plutonium Sustainment program and other required plutonium missions. The AoA Team determined that the original modular building strategy as proposed at CD-0 is not a viable option for the 80 WR ppy production requirement. Three aspects of this strategy prevent it from meeting mission requirements:

- PF-4 is only capable of an estimated 30 ppy (on average) after planned upgrades.
- Renovation of existing processing areas within PF-4 makes the 30 WR ppy sustainment capability unachievable by 2026 and presents schedule risks to other current missions not present in other options.
- An 80 WR ppy equipment set (at high confidence), requires over three times more HC-2 processing space than provided by two 5,000 square foot modules.

Although the modular building strategy envisioned at CD-0 utilizing PF-4 does not meet the functional and process requirements for an 80 WR ppy production, after a new 80 WR ppy capability is established, PF-4 can return to the research and development mission for which it was built.

A key finding of this AoA was the high schedule risk for all alternatives. There are two types of schedule risk, risk associated with the complexity of the schedule (complexity) and risk associated with the ability to execute the schedule as envisioned (executability). Complexity risk is related to the difficulty associated with design and procurement of processing equipment and the design and construction of a HC-2 facility. Complexity risk is reflected in the schedule analysis, and compounds with a phased approach to design and construction. Executability risk is related to resources, efficiency, and personnel. Executability risk is reflected in the cost estimating section. Although the complexity analysis indicated a 2030 schedule is achievable under ideal circumstances, the associated cost analysis demonstrated that executability risk would delay achievement of 80 WR ppy to 2033 at the earliest for any alternative.

Based on the AoA analyses, the Program Secretarial Officer has directed further refining each of the two preferred alternatives by executing an engineering analysis prior to conceptual design. The results of the engineering effort, coupled with the AoA analysis, will be used to inform a decision memorandum from the Program Secretarial Officer and enable pursuit of a full conceptual design package on a single preferred alternative.



Trump Administration Neuters Nuclear Safety Board

Under a new order from the Energy Department, a nuclear safety board will have to fight for information about and access to nuclear laboratories. In the past, the board has brought serious problems at those labs to light.

by Rebecca Moss, [Santa Fe New Mexican](#), July 22, 6 a.m. EDT

This article was produced in partnership with the Santa Fe New Mexican, which is a member of the [ProPublica Local Reporting Network](#).

The Trump administration has quietly taken steps that may inhibit independent oversight of its most high-risk nuclear facilities, including some buildings at Los Alamos National Laboratory, a Department of Energy document shows.

An order [published](#) on the department's website in mid-May outlines new limits on the Defense Nuclear Facilities Safety Board — including preventing the board from accessing sensitive information, imposing additional legal hurdles on board staff, and mandating that Energy Department officials speak “with one voice” when communicating with the board.

The board has, by statute, operated independently and has been provided largely unfettered access to the nation's nuclear weapons complexes in order to assess accidents or safety concerns that could pose a grave risk to workers and the public. The main exception has been access to the nuclear weapons themselves.

For many years, the board asked the Department of Energy to provide annual reviews of how well facilities handled nuclear materials vulnerable to a runaway chain reaction — and required federal officials to brief the board on the findings. It also has urged the energy secretary not to restart certain nuclear operations at various sites until work could be done safely.

At Los Alamos, the board has conducted ongoing reviews of the plutonium facility, holding hearings in Santa Fe and in recent years identifying imminent and “major deficiencies” in the building that could put the public at risk in the event of an earthquake. The lab sits on an active and complex geological fault system capable of causing a high magnitude quake.

The Energy Department's order is the latest effort to limit transparency and weaken the board's ability to conduct oversight, experts and critics say. And it represents another step by the Trump administration to [stall or halt the work done](#) by advisory boards and committees across the federal government, including a scientific advisory board at the Environmental Protection Agency and several of the Department of Labor's advisory committees established to protect worker safety and health.

“This administration is very regressive,” said Robert Alvarez, who helped draft the legislation that created the board in the 1980s as a senate staff expert for Sen. John Glenn, D-Ohio, and subsequently served as senior policy adviser for former Energy Secretary Bill Richardson. “We shouldn't have to wait for something to blow up or catch fire in order to pay attention to a safety problem.”

The Department of Energy did not respond to multiple requests for comment, but [said in a presentation](#) that the order will increase efficiency and decrease costs. “This order does not hinder cooperation with the board or to prevent them from accomplishing their safety oversight responsibilities,” the presentation said. A spokesman for the safety board also declined comment on the order, saying it was in the Energy Department's purview. The spokesman said the board and staff are waiting to see how it “shakes out.”

The five-member board was formed in 1988 near the close of the Cold War, as the public and Congress began to question the lack of accountability at the Department of Energy and its predecessor agencies, which since the end of the Manhattan Project had made their own rules and been entirely self-regulating. At the time, there were reports of widespread radiological contamination at the Rocky Flats Plant in Colorado and problems at other nuclear facilities. The board's formation also came on the heels of the Chernobyl nuclear disaster.

Chernobyl, Alvarez said, showed the lax conditions in which nuclear power and materials were being manufactured both in the then-Soviet Union and the United States, and the calamity that could arise from an accident. The board was born out of that understanding, and now relies on a staff of more than 100, several of whom are stationed at lab sites. These staffers create weekly one-page reports that outline mishaps and near-misses and help inform larger recommendations.

The board does not have regulatory power, but for the first two decades of its life, all of its recommendations were adopted by the energy secretary.

Now, Alvarez said, the Department of Energy is trying to "isolate and fence off" the board's access, part of a "constant effort to chip away at the ability of the board to do oversight."

Sen. Tom Udall, D-N.M., said in an email that the board is integral to New Mexico's weapons labs. The board also oversees facilities in California, Washington state, South Carolina and other states.

"We have seen too many serious safety and security lapses at DOE nuclear sites to accept any attempts to weaken" the board, Udall said, adding that he wants to preserve the board's "critical role as an independent watchdog for public health and safety."

He said he will be asking the Department of Energy for a "full account" of how the changes will affect worker safety and public health.

The safety board's very existence — and its ability to provide nuclear safety information to the public — has been threatened in recent years, advocates of the board say. Last summer, for example, the board's then-chairman proposed dissolving the board entirely. A few months later, the National Nuclear Security Administration, an arm of the Energy Department that oversees the nation's nuclear stockpile, said less information should be made public by the board.

Last September, [the board rescinded](#) one its long-pending recommendations, related to emergency safety, after concluding that the Department of Energy failed to understand the problems and that officials did not intend to remedy them. The board has made no new recommendations since 2015.

Critics of the board, including some of its former leaders, say limiting its access to information may be a good thing.

Sean Sullivan, who retired as the board's chairman in February, recommended last summer that the board be disbanded, saying it was a relic of the Cold War and its oversight was redundant of the work already done by the Department of Energy and the National Nuclear Security Administration. The proposal, he said, was a cost-cutting measure but it was opposed by other board members and abandoned.

Sullivan says it makes sense for the Department of Energy to have control over all information released to the public and it has long been frustrated when the safety board autonomously made safety information public.

For instance, Sullivan said, when board staff raised concerns in 2015 about uranium processing at the Y-12 nuclear facility in Tennessee, it was reported by a local paper and caused a headache for the nuclear security administration. Energy officials had yet to discuss problems at the site with congressional representatives from the state.

"Government shouldn't try to hide things," said Sullivan, emphasizing that he was speaking as a private citizen, but "if the public gets everything, conclusions may be drawn which are inaccurate — and that in and of itself can be problematic."

Some of the nuclear security administration's dissatisfaction with the board was revealed last fall when former Energy Undersecretary Frank Klotz recommended that the board stop publishing its weekly, one-page site reports from several national laboratories, including Los Alamos, online.

Klotz, citing an article about nuclear safety problems at Los Alamos, [published in September](#) in The New Mexican, said the reports were unflattering and might discourage workers from bringing issues to light in the future (even though workers are unnamed in the reports), [the Center for Public Integrity reported](#).

Current acting board chairman Bruce Hamilton drew up a proposal recommending the board staff make weekly reports orally to board members, so as to avoid public embarrassment, but it was not adopted and the reports are still available. Around the same time, all Energy Department staff were required to [undergo training](#) to "control" the release of unclassified information.

David Jonas, a Washington, D.C., lawyer who served as general counsel for both the National Nuclear Security

Administration and the safety board, said there have long been disagreements between the board and the Department of Energy. But there's never before been such explicit limits on what the safety board can access, as outlined in the order, he said.

"The defense board is going to end up getting a little less information based on this," he said.

The statute establishing the safety board explicitly gave board members and staff powers of investigation and said the secretary of energy should cooperate fully with the board and provide it "with ready access to such facilities, personnel, and information as the Board considers necessary to carry out its responsibilities."

The new order appears to add caveats to how the law is carried out. Board members can no longer speak to lab staff without permission from the Department of Energy. The order may also make it difficult for them to access records related to how much radiation exposure workers receive.

While the statute that established the board technically trumps the order, the document gives the Department of Energy "more power to resist the defense board requests" and as a result will delay the process of getting information to the safety board, Jonas said.

He anticipates a legal fight, saying, "It's a mess."

Even before the start of the Trump administration, the Department of Energy had been tightening control over information released to the public.

In January 2017, while Barack Obama was still president, the Energy Department deleted several requirements for what types of incidents laboratory managers must report to a federal database used by the safety board to review problems at laboratories. Beginning that fall, labs no longer had to report certain potential safety problems or provide as much information about "near-miss" accidents.

The impact of the change is already apparent. Under the old reporting requirements, the Los Alamos lab detailed 103 incidents in 2016 and 77 incidents in the first nine months of 2017. Under the new order, Los Alamos reported just 13 incidents for the last three months of 2017 and 28 for the first six and a half months of 2018.

Sullivan, on behalf of the board, [wrote a letter](#) to Energy Secretary Rick Perry in May 2017 saying the new requirements "negatively affect safety oversight" and reduce nuclear facilities' ability to learn from mistakes. (Sullivan personally voted against sending the letter.) [Perry declined to make changes](#), saying the new rules still ensure "safety oversight is not degraded at defense nuclear facilities."

The safety board [voted last month](#) to hold up to three public hearings beginning in late August on the intent of the new order and how it might impact access to information. Hamilton, the board chairman, was the only member to vote against holding the hearings.

Do you work or have you worked at Los Alamos? We'd like to hear from you. Email rmoss@sfnewmexican.com.

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Structural Features Making NNSA an Unusual Federal Agency

- **NNSA's nuclear weapons and nuclear propulsion are unusually important weapon systems.** They provide the foundations for defense deterrence, military justification for superpower status, and much freedom of action for conventional forces. In the hands of adversaries, they also present unacceptable risk. Ergo, since 1945, "nukes" have been managed at or near the top of government. In law since 1946, "nukes" cannot be designed by the military, only civilians.
- **"Nukes" are the only major weapon systems split across two Federal Agencies.** Since 1946, nuclear weapons—as full weapons systems—have been handled in two primary agencies: NNSA, responsible for warhead design, production, and parts storage; and DOD, responsible for weapons delivery systems, weapons' characteristics, employment, and storage. Particularly when involving resources, most topics today are inherently interagency issues.
- **NNSA contractor management is thinner than in relevant agencies.** This is a span of control issue. Sometimes called a hollow agency by academia, NNSA's prime contractors consume 95 percent of the funds—one Federal employee (Fed) per 20 prime contractors. As contrast, the DOD's ratio is one-to-one. An associated aphorism: In most agencies, the Feds manage the contractors; in NNSA, the contractors manage the Feds.
- **NNSA's contractors have captured the government.** Sometimes leaking into the open, internal lab emails sometimes refer to their "capture strategy" for NNSA explicitly, and the rest of government implicitly. A key part of this strategy is NNSA's significant staff augmentation from the lab contractors. NNSA authorizes that Defense Programs, fiscally half of NNSA, may have lab augmentees comprise up to 20 percent of the day-to-day workforce. This is unprecedented in government. NNSA does not employ the full 20 percent on staff, but under this authorization, it "co-funds" and details lab contractors to DOD and other agencies' key nuclear offices, often for free. There they may remain for decades, and/or later burrow into those offices as Feds. Co-funding also contributes to lab contractors blanketing EOP offices at the NSC and OSTP, and on the Hill. On the staffs of key Hill members and committees, they routinely serve as initial spearheads of lab interests and as defensive bulwarks against Administration attempts to change the status quo.
- **NNSA's contracting is competitive, but contractor regulation is antiquated.** The early nuclear program faced unprecedented scientific and technical challenges, pressing national security demands, a heavily academic workforce impatient with Federal rules and restrictions, and safety and environmental risks that were poorly understood. As a result, initial contracts were non-competitive, and regulations waived the contractors of many risks, liabilities, and management and cost controls. After a variety of scandals, in the mid-2000s Congress mandated contracting be competitive. However, in spite of a half century of risk evaluation and assessment, and the evolution of modern management and cost controls, NNSA contractor regulation remains antiquated.
- **The economic structure is uniquely disadvantageous for the government.** The government and NNSA weapons contractors form a bilateral monopoly. Under a bilateral monopoly, economic theory states that the government ensures fair pricing only if it gets adequate and accurate cost information. Federal contractors are covered by the Truth in Negotiations Act (TINA) to ensure such information; but, unlike other agencies, DOE and NNSA waive TINA.
- **NNSA contractors "have a seat in the Cabinet."** The early, academically-inclined workforce included many future Nobel Prize winners, and due to its expertise, was legislated to speak on nuclear issues to the President without agency interference. Implicitly, the contractors were given a seat in the Cabinet. They retain this authority today in spite of evolving into subsidiaries of standard defense contractors like Bechtel, Honeywell, and Lockheed. These subsidiaries may also speak formally to Congress on any issue without agency or Presidential interference, and they may be reimbursed for such lobbying under their NNSA contracts. The inherent conflict of interest is codified law.

Symptoms of NNSA's Unusual Structural Features

- **NNSA lab contractors have an extremely high cost structure.** Vis-à-vis remuneration, lax oversight has encouraged NNSA contractors to benefit handsomely. Compared to DOD's Research and Development (R&D) sector, fully loaded per capita costs at the NNSA labs are 70 percent higher than DOD's comparable costs, even DOD's purchase of nuclear R&D services from other sources. As a telltale, a market survey of 2010 census data found that Los Alamos had more per-capita millionaires than any other significantly-sized U.S. community. Relevant since high-precision conventional weapons became competitive for some nuclear offensive missions, an aphorism voiced in DOD about the cost structure is, "The labs are pricing nukes out of existence, and we have some substitutes now."
- **NNSA has unusually poor acquisition program performance.** Schedule slips and cost overruns by large amounts are common, and worse than other defense agencies. NNSA has been on GAO's high risk list for potential fraud, waste, and abuse since its inception—unique among Federal agencies. Senator Feinstein maintains a list of NNSA "[O]verruns and schedule delays on every major project." In a particularly bad case, the MOX project is 15 years late, and the lowest estimate of the projected cost overrun is 500 percent.
- **NNSA's Feds and legal framework for its contractors "accept the unacceptable."** This quote is from comments on NNSA by a renowned national expert on Federal defense contracts. Today's legislation, regulation, orders, and contracts under NNSA management still effectively waive standard risk liability, cost, and management controls required under the Federal Acquisition regulations (FAR) for other government contracts. Both internal and external reviews note a pattern: NNSA's culture accepts waivers of standard best business practice, and then substandard outcomes arise that are traceable to the waiver(s). As contrast, NNSA's contractors—companies like Lockheed, Bechtel, and Honeywell—routinely accept conventional FAR constraints under DOD management.
- **An 80-year-old nun breaches a nuclear site, but no Fed is held responsible.** An after-action DOE IG report stated that Federal employees believed they lacked the authority to force the contractors to fix the security problems. No Fed was ever terminated, but a documented chain of evidence exists demonstrating explicit Federal weakening of contractor oversight prior to the breach.
- **Lab contractors constantly lobby Congress, and Congress lobbies the Executive Branch on nuclear issues.** Today it is warhead upgrades, and recapitalization of the stockpile and infrastructure. Six years ago it was security, pension mismanagement, and the New START Treaty. Typically, the Hill is being goaded by near-constant contractor lobbying, which—again unique in the government—is reimbursed by the government.
- **NNSA process lacks program evaluation and mature cost estimation.** As contrast, DOD has had such processes in place for 50 years. Currently, DOD is helping NNSA to initiate some of them. DOD's acquisition performance, while also imperfect, is demonstrably better than NNSA's. NNSA's efforts at better cost estimating are several years old, but they have few staff and incomplete jurisdiction over major NNSA expenditures. NNSA still lacks a DOD-like independent program review. Prior attempts to stand up such capabilities in NNSA and DOE have often been hobbled by lab-generated legislation or scuttled by lab lobbying as soon as the labs became aware of them.
- **If threatened, the lab contractors resort to nuclear blackmail.** The lab contractors certify weapons and annually assess the stockpile's readiness for the President and Congress. In testimony and in senior Executive Branch meetings, when they deem funding to be insufficient, the labs attempt to stampede the government community by hinting and sometimes explicitly articulating that in the future they may not be able to approve stockpile readiness.

Acronym/Abbreviations

DOD	Department of Defense
DOE	Department of Energy
EOP	Executive Office of the President
Feds	Federal employees
Hill	Congress, Congressional staffs, committees and committee staffs
IG	inspector General
Lab(s)	Laboratory(ies); reference to contractors running the Sandia, Lawrence Livermore, or Los Alamos sites
MOX	Mixed oxide facility at Savannah River, South Carolina
NNSA	National Nuclear Security Administration
NSC	National Security Council
Nukes	nuclear weapons and/or nuclear weapons affairs and issues
OSTP	Office of Science and Technology Policy
R&D	research and Development
TINA	<i>Truth in Negotiations Act</i> , enacted 1962 and/or its upgrade in 41 U.S.C. Chapter 35 by P.L. 111-350, enacted 2011, and titled the <i>Truthful Cost or Pricing Data Act</i> .



National Defense Authorization Act for Fiscal Year 2019, H. R. 5515

SEC. 3120. PLUTONIUM PIT PRODUCTION.

(a) STATEMENT OF POLICY.—It is the policy of the United States that—

(1) Los Alamos National Laboratory, Los Alamos, New Mexico, is the Plutonium Science and Production Center of Excellence for the United States; and

(2) Los Alamos National Laboratory will produce a minimum of 30 pits per year for the national pit production mission and will implement surge efforts to exceed 30 pits per year to meet Nuclear Posture Review and national policy.

(b) INDEPENDENT ASSESSMENT OF PLUTONIUM STRATEGY.—

(1) IN GENERAL.—Not later than 30 days after the date of the enactment of this Act [August 13, 2018], the Secretary of Defense, in consultation with the Administrator for Nuclear Security, shall seek to enter into a contract with a federally funded research and development center to conduct an assessment of the plutonium strategy of the National Nuclear Security Administration.

The assessment shall include—

(A) an analysis of the engineering assessment and analysis of alternatives, including an analysis of each of the four major options contained within the engineering assessment;

(B) an assessment of the risks and benefits involved in each such option, including risks and benefits related to cost, schedule, licensing, labor availability, and workforce development, and effects on and from other programs;

(C) a description of the strategies considered by the National Nuclear Security Administration to reduce those risks; and

(D) an assessment of the strategy considered for manufacturing up to 80 pits per year at Los Alamos National Laboratory through the use of multiple labor shifts and additional equipment at PF-4 until modular facilities are completed to provide a long-term, single-labor shift capacity.

(2) SELECTION.—The Secretary may not enter into the contract under paragraph (1) with a federally funded research and development center for which the Department of Energy or the National Nuclear Security Administration is the primary sponsor.

(3) ACCESS TO INFORMATION.—The federally funded research and development center with which the Secretary enters into the contract under paragraph (1) shall have full and direct access to all information related to pit production, including information of the National Nuclear Security Administration and its management and operating contractors.

(4) REPORT REQUIRED.—Not later than April 1, 2019, the federally funded research and development center with which the Secretary enters into the contract under paragraph (1) shall submit to the Secretary, the Administrator, and the Nuclear Weapons Council established under section 179 of title 10, United States Code, a report containing the assessment required by paragraph (1).

(5) SUBMISSION TO CONGRESS.—Not later than April 15, 2019, the Secretary shall submit to the congressional defense committees the report required by paragraph (4), without change.

(c) REPORT ON PIT PRODUCTION AT LOS ALAMOS NATIONAL LABORATORY.—

(1) IN GENERAL.—Not later than 180 days after the date of the enactment of this Act [August 13, 2018], the Administrator shall submit to the congressional defense committees a report containing—

(A) a detailed plan to produce 30 pits per year at Los Alamos National Laboratory by 2026, including—

(i) equipment and other construction already planned at the Chemistry and Metallurgy Research Replacement Facility;

(ii) additional equipment or labor necessary to produce such pits; and

(iii) effects on and from other ongoing programs at Los Alamos National Laboratory; and

(B) a detailed plan for designing and carrying out production of plutonium pits 31–80 at Los Alamos National Laboratory, in case the MOX facility is not operational and producing pits by 2030.

(2) ASSESSMENT.—Not later than 120 days after the submission of the report required by paragraph (1), the Director for Cost Estimating and Program Evaluation of the National Nuclear Security Administration shall submit to the congressional defense committees an assessment of that report, including an assessment of the effect of increased ARIES activity in support of the dilute and dispose program on the plutonium pit production mission.

(d) BRIEFING.—Not later than March 1, 2019, the Chairman of the Nuclear Weapons Council and the Administrator shall jointly provide to the congressional defense committees a briefing detailing the implementation plan for the plutonium strategy of the National Nuclear Security Administration, including milestones, accountable personnel for such milestones, and mechanisms for ensuring transparency into the progress of such strategy for the Department of Defense and the congressional defense committees.

(e) ANNUAL CERTIFICATION.—Not later than April 1, 2019, and each year thereafter through 2025, the Chairman shall submit to the Secretary, the Administrator, and the congressional defense committees a written certification that the plutonium pit production plan of the National Nuclear Security Administration is on track to meet—

(1) the military requirement of 80 pits per year by 2030, or such other military requirement as determined by the Secretary;

(2) the statutory requirements for pit production timelines under section 4219 of the Atomic Energy Defense Act (50 U.S.C. 2538a); and

(3) all milestones and deliverables described in the plans required by subsection (c)(1).

(f) FAILURE TO CERTIFY.—

(1) NWC NOTIFICATION.—If in any year the Chairman is unable to submit the certification under subsection (e), the Chairman shall submit to the congressional defense committees, the Secretary, and the Administrator written notification describing why the Chairman is unable to make such certification.

(2) NNSA RESPONSE.—Not later than 180 days after the date on which the Chairman makes a notification under paragraph (1), the Administrator shall submit to the congressional defense committees, the Secretary, and the Chairman a report that—

(A) addresses the reasons identified in the notification with respect to the failure to make the certification under subsection (e); and

(B) includes presentation of either a concurrent backup plan or a recovery plan, and the associated implementation schedules for such plan.

(g) DEFINITIONS.—In this section:

(1) ARIES.—The term “ARIES” means the Advanced Recovery and Integrated Extraction System method, developed and piloted at Los Alamos National Laboratory, Los Alamos, New Mexico, for disassembling surplus defense plutonium pits H. R. 5515—660 and converting the plutonium from such pits into plutonium oxide.

(2) DILUTE AND DISPOSE APPROACH.—The term “dilute and dispose approach” means a method of blending plutonium oxide made from surplus defense plutonium with an inert mixture, then packaging and indefinitely disposing of the combined material in a geologic repository.

(3) MOX FACILITY.—The term “MOX facility” means the mixed-oxide fuel fabrication facility at the Savannah River Site, Aiken, South Carolina.



Los Alamos Study Group

Nuclear Disarmament • Environmental Protection • Social Justice • Economic Sustainability

Greg Mello, Executive Director, is a co-founder of the Los Alamos Study Group and has led its varied activities since 1992, including policy research, environmental analysis, congressional education and lobbying, community organizing, litigation (FOIA, civil rights, NEPA), advertising, and the nuts and bolts of funding and running a small nonprofit. From time to time he has served as a consulting analyst, writer, and spokesperson for other nuclear policy organizations. Greg was educated as a systems engineer with a broad scientific background (Harvey Mudd College, 1971, with distinction) and as a regional planner with emphases in environmental planning and regional economics (Harvard, 1975, with distinction, HUD Fellow in Urban Studies). During the early 1980s Greg was a high school science and math teacher, then a hazardous waste inspector and statewide hazardous materials incident commander, and in the late 1980s a supervising hydrogeologist, for the New Mexico Environment Department. In 1984 Greg led the first regulatory enforcement at Los Alamos National Laboratory (LANL). In the early 1990s Greg was a consulting hydrologist in parallel with the early Study Group, with cleanup projects in New Mexico and California. In 2002, Greg was a Visiting Research Fellow at Princeton University's Program on Science and Global Security. Greg's research, analysis, and opinions have been published in the *New York Times*, *Washington Post*, *The Bulletin of the Atomic Scientists*, *Issues in Science and Technology*, in the New Mexico press, and elsewhere. He has been interviewed thousands of times by U.S. and international news media (print, radio, and television). Greg's research has been the source or impetus of many of these media articles and programs. In addition to speaking at hundreds of public meetings and events in New Mexico, Greg has been a guest speaker at several international disarmament events here and abroad.



Los Alamos Study Group

Nuclear Disarmament • Environmental Protection • Social Justice • Economic Sustainability

DOES LOS ALAMOS NATIONAL LAB HELP OR HURT THE NEW MEXICO ECONOMY?

WORKING PAPER, JULY 2006, GREG MELLO

Many people assume Los Alamos National Laboratory (LANL) provides economic benefits to the region. Well, does it? And if so, to whom?

It stands to reason that every large facility that spends a lot of money will have at least some economic benefits – it will provide jobs, for starters. There will also be some downsides in every case – perhaps housing costs will be bid up, or there may be some pollution. There will likely be some strains on local government services, so taxes may rise.

There’s always some kind of tradeoff between costs and benefits, and these never seem to fall equally on everybody. We need to look at some of these tradeoffs to understand why the wider benefits of LANL for northern New Mexico, and for the state as a whole, are so elusive.

In addition to these direct (or fairly direct) economic consequences, every big facility like LANL will also have *social consequences* as well as *political and cultural consequences*. Important *indirect* economic consequences accrue to states and communities in conjunction with, and are caused by, these political and social changes. They’re interrelated. Economists are often impatient with political and social

phenomena because they are impossible to quantify, and more so because they are politically dangerous to discuss. I suppose almost everybody knows that political and social phenomena are absolutely central in determining a facility’s economic consequences, because corporate management and political practice in the real world include massive attention and investment in these

phenomena.[1] Keeping alert to LANL’s political, social, and cultural impacts will also give us clues as to why its wider economic benefits are elusive.

No one can objectively say whether our state’s involvement with nuclear weapons, which we might say has “radiated” from Los Alamos since 1943, has helped or hurt New Mexico. We can’t compare one history, which happened, with some other one which did not. On the other hand, neither should we fall into the trap of saying that just because “Facility X” provides jobs, its economic impact is positive. All operating facilities of any kind whatsoever provide “jobs,” and

the question, *jobs for whom?* It’s also quite possible that Facility X, which by definition provides jobs, could drive away other jobs, perhaps many more than it provides. It’s also possible that immigrants from other states could take most Facility X jobs. So even while adding new jobs, it’s quite possible Facility X could increase the number and worsen the plight of the poor in the area, or lead the region toward economic decline even while adding “jobs.” Other reasons, discussed below, may also occur to you why this could be the case.

For these reasons and many, many more, regional economists know that merely “providing jobs,” while on its face a good thing, isn’t an adequate measure of a facility’s net economic benefit. Sheer economic growth, which is often concentrated in a relatively few hands, is even less reliable than “jobs” as a measure of broad economic benefit. Development economists often prefer to focus not on “jobs” or even “total income” as goals but rather more on the human goals of economic development: improved health and educational outcomes, decreased poverty, and other objective quality of life indices. It is primarily against such broader and human-oriented development goals that LANL’s benefit, or lack thereof, must ultimately be measured.

We should recognize this or any choice of development goals as a political decision. It is a decision regarding what and who matters most. To pick two extremes, is our goal to maximize aggregate wealth, with little regard for how concentrated it is? Or just the opposite: to decrease poverty and make sure no one is left behind?

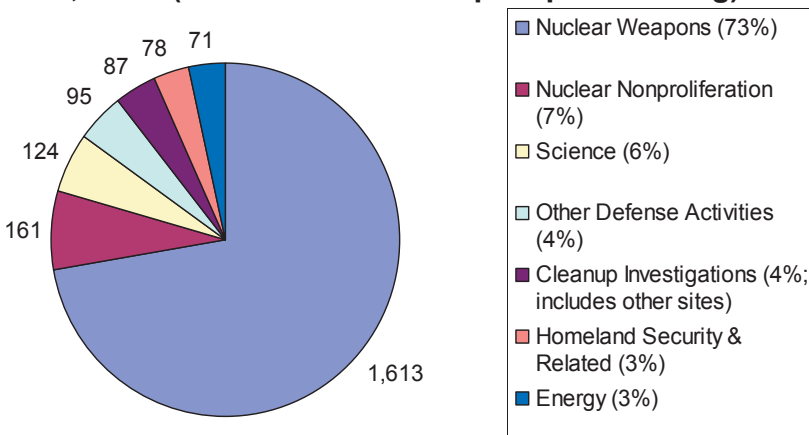
Above all, when evaluating the economic consequences of any facility like LANL, we have to ask ourselves about *the net benefits relative to what other investments*

Dollars alone do not tell the tale. LANL has social, cultural and political impacts which are absolutely central in determining its economic benefit – or lack thereof.

social phenomena are absolutely central in determining a facility’s economic consequences, because corporate management and political practice in the real world include massive attention and investment in these

Providing “jobs” isn’t an adequate measure of a facility’s net economic benefit.

**Los Alamos National Laboratory and Site Office
FY 2004 Funding in Millions (All Sources):
\$2,229 M (includes \$200 M unspent prior funding)**



LANL budgets are tricky; the LANL 2004 budget is shown here because our information was relatively complete in that year. The 2006 LANL budget is comparable.

two jobs are always more than one. Many a town has ridden that hobby-horse into economic oblivion. What’s more, “providing jobs” obscures more than reveals. Crucial information omitted includes the answer to

we might make. If no alternatives are possible, why do the analysis at all? Too many New Mexico political leaders gave up long ago and now content themselves with fiddling around the margins of social failure.

In New Mexico's case, we begin with the certain knowledge that something is now

terribly wrong with our economy, our political life, and our society. They are not what they could be and not what they should be. Whatever you may think about "the good old days," which usually weren't, our economic standing relative to

other states has fallen – and it has fallen at the same time as New Mexico's nuclear institutions have blossomed. Is this just a coincidence?

Answers to this question basically fall between two poles: yes, and no. "Maybe," "sort of," and "both" are also possibilities. It's clear, though, that the importance of nuclear weapons in the state's economic and political life since World War II make Los Alamos, Sandia, Kirtland Air Force Base, and WIPP difficult to assign to economic and political oblivion – to say they don't matter. Like the famous elephant in the living room, they're too big, and too big in many ways, to ignore.

If on top of the forenamed nuclear facilities we also consider the impacts of other military facilities like White Sands Missile Range, Cannon and Holloman air force bases, and the now-closed Fort Wingate (near Gallup) and Walker Air Force Base (in Roswell), the post-World War II military influence on New Mexico's total development – economic, political, and cultural – is undeniable. Either it's been good for us, or not, but it's not irrelevant. We've been shackled up with the military, especially the nuclear part of it, for a long time now.

I find it difficult to see how nuclear weapons could have been a big contributor to our economy for decades – something I hear every week – without also being a big contributor to the resulting economic outcome over those same decades, i.e. very high poverty and income disparity relative to other states, and so on.

We can't change our past, but we can understand it better. As we do so, our story, our history, changes too, and we change in it. New doors can open. Like it or not, nuclear weapons have become a big part of our state's story. Our relationship to them and to the institutions that foster and promote them

will have a lot to say about New Mexico's future.

And not just our own future. The morning after Hiroshima, New Mexico found itself thrown into the very center of history, a position it has never entirely left, thanks to the nuclear facilities it harbors. What happens from here on out will affect not just our own state's economy and society, but everybody's. This is especially true given LANL's new role as the place where, after a 17-year hiatus, the production of plutonium warhead cores ("pits") is slated to re-start.

The myth of LANL as a regional economic engine

Beyond direct payments to its employees and contractors, which comprise only a small fraction of the region's population, LANL's broader economic benefits are "missing in action."

Look around. LANL has spent \$64 billion (B) over six decades.[2] If LANL were a force for economic development, we should see lab-related economic

development in the surrounding counties. There has been plenty of money and plenty of time. Where's the LANL-related development outside the town of Los Alamos itself?

Between 1995 and 2005, LANL spending rose dramatically to more than *three times* its average Cold War spending, in constant dollars. If LANL were a nucleus of high-tech economic development as often claimed, shouldn't we see private research and development (R&D) investment coming into the LANL region and the state? We know that in one recent period (from 1999 to 2002) New Mexico had a greater decline in venture capital investments than any other state.[3]

New Mexico's political and economic leaders frequently speak of the state as if it were a "high-technology" state. New Mexico, with \$4.98 B in total R&D funding in 2003, had the highest ratio of R&D spending to gross state product of any state that year. [4] New Mexico, in this sense, is a "high-

tech state."

Fully 86% of New Mexico R&D was of federal origin that year, and of that, most was military in nature.

What does it get us? We hear time and time again that the labs can be the centerpiece of a vibrant high-tech economy. Building these new businesses takes capital, and one indicator of high-tech capitalization, and hence growth in new businesses, is the amount of venture capital being attracted.

When it comes to attracting venture capital New Mexico does poorly. According to data compiled by the National Science Foundation (NSF) for 2003, the most recent year available, New Mexico attracted just \$6.63 M in venture capital that year. The state's R&D sector was 45th among states in its overall efficiency in attracting venture capital dollars, attracting only \$1.30 in venture capital per \$1,000 in R&D investment. This is only 2% as efficient as all U.S. R&D taken together and less than 1% as efficient as Massachusetts R&D, which led the states in efficiency of attracting venture capital with R&D investment, bringing in a total of \$2.8 B that year.

So at least in 2003, very few technologies were moving out of the New Mexico laboratories and into the marketplace – or if they did, they weren't doing so in New Mexico. And why should they, with our state's poor educational performance and other social ills?

As a fraction of our total state's economic activity, venture capital investments in New Mexico in 2003 were a paltry 7% of the national average, suggesting that New Mexico may be falling even further behind as a high-tech economy.

Another perspective on just how "high-tech" New Mexico is can be gleaned by looking at our "high-tech" employment. According to the NSF, in 2002 about 34,228 (6.2%) of all New Mexico employees were employed in "high-technology establishments," giving us a rank of 39th among the states, not all that great. If the employees of our two nuclear laboratories are tentatively excluded, however, on the thesis that their work doesn't contribute to the state's economy but rather mostly stays

Too many New Mexico political leaders gave up long ago and now content themselves with fiddling around the margins of social failure.

Beyond direct payments to its employees and contractors, a small fraction of the population, LANL's economic benefits are "missing in action."

From 1999 to 2002 New Mexico had a greater decline in venture capital investments than any other state. In 2003 the state's R&D sector was 45th among states in its efficiency in attracting venture capital – only 2% as efficient as the U.S. as a whole.

If the employees of our two nuclear laboratories are excluded (on the thesis that their work stays "behind the fence"), New Mexico is near the bottom of U.S. states in high-tech employment. New Mexico is a "low-tech," not a "high-tech," state.

“behind the fence,” New Mexico falls to near the very bottom of all U.S. states in high-tech employment.

New Mexico is a “low-tech,” not a “high-tech,” state.

The common myth ignores all this and more, saying LANL’s economic benefits are real but *hidden*.

LANL spends a lot of money – right now, about \$2.2 billion per year.[5] A lot of people work there – right now, about 12,000 people including subcontractors.[6] These employees and subcontractors spend some fraction of their salaries in the region. In addition, LANL buys some, though not very many, tangible goods in New Mexico.[7] Since, it is thought, any and all spending is good for “the economy,” LANL must be good for “the economy.” (We shall see in moment why it is necessary to place this phrase in quotation marks.)

The myth goes on to say that the economic stimulus provided by each LANL dollar is mightily magnified by circulation in “the regional economy” before its flight in pursuit of goods and services elsewhere. This necessarily assumes the dollars are spent here in the first place, and while some are, many aren’t. Many are sent away immediately to service nationally-held home mortgages and insurance policies, to web retailers, to out-of-state colleges, and spent on vacations, etc. Northern New Mexico is anything but a “full-service economy.” The income fraction spent locally is likely to be less for higher-income households.[8] Much specialized procurement leaves the state, as do pension fund contributions and most profits.

For dollars which are spent locally, the economic stimulus provided to the New Mexico economy is indeed magnified to some extent by one or more subsequent transactions. Both the *scale* and *nature* of this magnification need close scrutiny, however – more than we can provide in this article. For example, the dramatically increasing share of retail trade held by lean-and-mean big box stores like Wal-Mart almost certainly takes away dollars faster than in the past, while

Quaint concepts like a regional “economic multiplier” for LANL spending involve more fiction than fact and are best left in the past. They were never worth much in first place. at the same time creating poor jobs inadequate to lift those who hold them out of poverty. Simple concepts like an “economic multiplier”

which would attempt to use a single number to describe the magnification of LANL’s spending by subsequent regional transactions

involve more fiction than fact and are best left in the past. They never were worth much in first place.

LANL is one of eight major foci of federal military spending in New Mexico. The same myth says that Sandia National Laboratory (SNL), the National Nuclear Security Administration’s (NNSA’s)

National Service Center in Albuquerque, WIPP, and our state’s four military bases, are also good for the economy, since...why was that again? Because they all spend money – that’s it.

Something more must be going on, however, because it isn’t working. Just sticking to economic measures, the Corporation for Enterprise Development (CFED), using a composite of 68 economic metrics, recently gave New Mexico an “F” in economic performance, a “D” in business vitality, and a “D” in development capacity.[9] New Mexico is almost the poorest state in the union. It is also almost the least healthy state, the least educated state, and the most violent state. It is one of the worst states in which to raise a child, and our rank in this regard is dropping.[10] Its social health has been rated the very worst of all states twice running by Fordham University.[11] It is not getting better. If anything it is getting worse.

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“The economy” is plural

Before going further, we should realize that we have been talking about “the economy” as if there were just one of them. The phrase implies a unity of economic interests in society, an idea which Gunnar Myrdal recognized as a “communistic fiction” a half-century ago.[12] Without much thinking about it, most economists assume that the interests of everybody, if not the same, are at least related in a harmonious whole. For economists, it has to be that way, or there is no point in using aggregate statistics, and where would economists’ careers be then? The underlying idea is that

an increase in wealth for somebody will benefit everybody.

This is as much a political fiction as it is an economic one. We like to take for granted that “a rising tide lifts all boats,” and trust economic benefits will “trickle down” – in this case from wealthy households and a single employer in Los Alamos County (the wealthiest county in the nation, and the one with the most millionaires per capita) to poorer households elsewhere.

The “communistic fiction” of what we euphemistically call “the economy” obscures not just different interests in society but also the effects of geography and the boundaries of local jurisdictions, helping us forget that many or even most of the people hired at LANL have moved here from elsewhere, and that taxes are paid in one place and not another. Of LANL’s employees, how many grew up here? The standard myth focuses on “jobs,” as if there were only one labor market. The extent to which LANL enters *local* labor markets is by definition dependent on how many *local* people are hired. Jobs mean nothing to the people who don’t get them.

And what, we should ask, are the goals of economic development anyway? The primary goal has usually been “economic growth,” i.e. growth in “the economy.” *Well who, exactly, should benefit from economic policies?* Who, for example, should be the *primary* beneficiaries, the ones we should keep in the foreground of our thought and plans? Upper-middle-class or millionaire scientists? This is the unspoken assumption made by the economic elite who shape public opinion in New Mexico today.

Tax benefits – or costs?

LANL and its subcontractors also pay state and local taxes, although whether LANL is tax-positive or tax-negative, considering the variety of costs it imposes on local governments, is quite another question and one worthy of research. LANL’s fiscal costs to state and local government include: highways and other infrastructure; schools, fire, police, and other local services; congestion in all its forms; demands on resources such as water supply; special costs relating to hazardous materials; environmental regulation and monitoring; and more. For all these reasons it is not clear

Who should be the *primary* beneficiaries of policy? Upper-middle-class or millionaire scientists? This is the unspoken assumption of the economic elite who shape opinion in New Mexico today.

whether LANL is a net tax boon to New Mexico or its parts.

In addition to fiscal burdens actually carried on various jurisdictions' books,

In addition to fiscal burdens, LANL also imposes uncosted hazards on the state and local jurisdictions as well as households. LANL also imposes uncosted hazards related to its peculiar mission on the state and on local jurisdictions as well as households.

In its operating contract, NNSA has

provided its LANL contractor blanket indemnification against all hazards related to nuclear materials and nuclear wastes, many of which hazards government in New Mexico barely acknowledges exist.[13]

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As lab spending has gone up, New Mexico's economic status has gone down

The standard myth, which really amounts to a set of theories as to why LANL *should* be a force for economic development in the region, would be fine if there were some data to support it.

There just isn't any. The economic history of LANL in our region is not one of economic development – quite the reverse. How can this be? As we shall see, there are countervailing factors which act to limit LANL's economic contribution and turn what superficially look like big pluses – big spending, high-tech projects, and high salaries – into big minuses.

What history shows is that as lab spending has increased (and as LANL's sister lab Sandia also increased its spending, more or less in parallel), New Mexico's per capita income rank has significantly *declined* relative to other states (Figure 1), down to its present 48th place.[14] Over approximately the same period, New Mexico's growth in income disparity has grown to exceed all but 2 other states.[15] If economic results are what count, we aren't getting them. We are getting economic failure.

We are getting the federal pork: since at least 1981, New Mexico's net per capita federal spending has exceeded that of all other states. Today, New Mexicans get \$2.00 back for every \$1.00 paid in federal taxes. In 2004, the last year for which this data is available, we got a whopping \$10,628 in federal spending per capita.[16] That's a lot

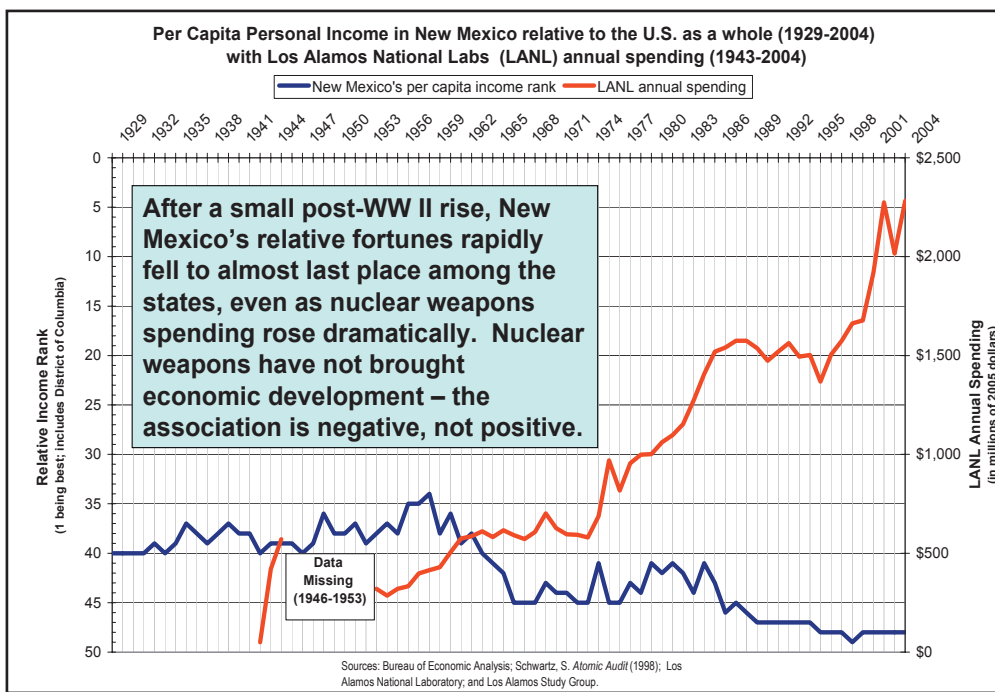


Figure 1: After a small post-WWII rise, New Mexico's relative fortunes fell to almost last place among the states, even as nuclear weapons spending rose dramatically. Nuclear weapons and associated military spending have not brought economic development: quite the reverse!

of money – \$20 B in all for that year, dwarfing our state government and accounting directly (prior to any “multiplier”) for 29% of our gross state product for that year. Such huge sums have been coming to New Mexico year after year. This year (2006) we will get about \$22 B.

What do we have to show for it? Very little in the way of autonomous economic development and very little in social development, suggesting that dependence on federal spending for what surely amounts to well over half the state's economy, when secondary household spending is included, has not been good for us. This observation is just the *opposite* of the “all-pork-is-good” narrative that animates the work of our congressional delegation.

Look: over the past decade and even over the last few years, when lab spending has been far higher than ever before, our health ranking has precipitously declined relative to other states, our educational standing has declined, our violent crime rate has increased relative to other states, and our drug overdose deaths have also increased relative to other states.[17]

Other than Los Alamos itself, communities which have received LANL spending via employees who commute to LANL have not fared particularly well. Over a three-decade period (1969-1999) during which overall LANL spending doubled in constant dollars, relative average per capita income in Rio Arriba County, which receives

far more LANL spending per capita than any other county except Los Alamos, remained essentially unchanged at 51-53% of the national average.[18]

More recent data show that since 1999 there *has* been an uptick in relative personal income in Rio Arriba County, up to 66%

of the national average by 2004. I don't know to what extent this is due to in-migration by, say, better-paid LANL employees and contractors, or to income growth by existing residents, or to new income

as a result of growth in Indian gaming, or to one-time income resulting from the aftermath of the Cerro Grande fire, which brought close to a billion dollars into Los Alamos and surrounding communities in direct payments and reconstruction, or to some other cause.

Despite this heartening increase in average income, however, Rio Arriba County remains poor and deeply troubled. It has a higher drug- and alcohol-related death rate than any other New Mexico county, and has a drug-related death rate three times that of New Mexico as a whole – which in turn is about twice the national average, making the county's rate six times the national average.[19] Despite all the federal money, *or perhaps even because of it*, Rio Arriba

County is a deeply troubled place. It is quite possible that income disparities in the region, especially between Rio Arriba and Los Alamos, are among the causes of Rio Arriba's drug addiction epidemic.[20]

Returning to Figure 1, does the negative correlation observed between *rising* lab spending and *falling* state income rank imply causality – does increased lab spending actually *cause* economic decline, in other words? It sounds far-fetched to many ears in New Mexico, so accustomed to the standard myth, but indeed it might. What this negative correlation certainly *does* mean is that those who believe the labs are good for the state's economy must meet a very heavy burden of proof.

Researchers point to regional income disparity – an “aura of apartheid” – as a cause of Rio Arriba's drug addiction epidemic.

LANL isn't that great yet but just wait...

A variation of the myth is that even if LANL has not been all that wonderful for the regional economy so far, *it's about to be*, thanks to this or that new gee-whiz economic initiative, or whatever. This myth was reiterated by the Governor's office just a few days ago prior to first drafting this paper.[21] One year we hear that LANL will be the anchor of a new “information highway.” Another year it's “bioinformatics.” Perhaps LANL will be an exciting magnet for venture capital, or maybe for digital film editing. We'll think of something! There would be a long list of failed lab-oriented economic hype if anyone cared to assemble it.

The cumulative fruit is almost trivial: in 2002, LANL claimed a grand total of 258 employees in 51 businesses spun off from LANL in the region – not much to show for six decades of gigabuck investment in so-called “world-class” science.[22] And many of these jobs are surely in Los Alamos itself, not in the communities where they are far more needed.

Another version of the myth involves skipping over the unpleasant economic realities of the past, present, and even the near future to focus on hopes for the “conversion” of LANL to better missions. LANL *could* be good for the region's economy and *could* also provide many other benefits to the nation, *if only* LANL could somehow be “converted.” This has the advantage of avoiding difficult political questions – such as what LANL is doing right now and what it is committed

to doing in the future – namely, becoming a factory for the manufacture of plutonium weapon cores (“pits”) in order to resume U.S. nuclear weapons production. We avoid the difficult “as is” world in favor of the attractive “as if” world. Such thinking remains as lab-centered as ever, which is exactly the problem. Indulgence in such fantasies just waste time and attention while the problems we face get worse.

The “conversion” myth avoids the unpleasant realities of the past, present, and near future – the “as is” world – to focus on an attractive “as if” world where huge nuclear facilities can become whatever we want them to be. Indulgence in such fantasies just wastes time and attention while real problems get worse.

Seldom-asked questions about these proposed new missions might begin with the question of whether they are actually appropriate for an applied science laboratory – here or anywhere. For example, are the proposed new missions (e.g., a new “Manhattan Project” for energy, or “new environmental cleanup technologies”) really science problems at all, or are they really political problems, or perhaps engineering problems? Some new “scientific” missions are little more than wishful thinking.

After threshold questions such as these we must then ask whether LANL is really the place to do this work. Can LANL work on these new problems more quickly,

Can LANL work on big urgent problems in which it has no experience more quickly, more successfully, more cheaply, and with fewer conflicts of interest than all other institutions?

more successfully, more cheaply, and with fewer conflicts of interest than competing institutions? If these new missions are very important – which must be the case if they are to be funded – it is also

very important to succeed. Is it really in the nation's interest to do such-and-such critical project, or part of a project, *at LANL*? If so, what should LANL's portion of the project be?

Above all, could LANL really succeed at brand-new, big missions? At what, exactly, has LANL succeeded in the past 60 years? Peek behind the public relations curtain, and you will find that the cupboard of contributions is pretty bare. Converting LANL, the institution, to important new missions in sustainability sciences, let us say, about as difficult as converting a surplus Abrams tank

to an organic farm. No can do.

Finally, if regional economic development is part of the subtext, as often it is, why precisely will these proposed new missions create economic development when the old missions did not? Or, if getting rid of weapons manufacturing is the subtext, what's the use of replacing the old jobs with new ones, since the new jobs are, barring strong arguments otherwise, no more likely to create economic development in New Mexico than the old ones?

Enormous financial interests are involved. According to DOE, the LANL prime contract is worth \$36.6 B.

Unwarranted influence

Even in the face of 100% contrary data, faith in the myth that LANL benefits the regional economy remains popular. Why? To understand this we need to look at the political context in which we think about this problem.

Simply put, the public discussion of these issues is almost entirely dominated by the money and political influence of New Mexico's nuclear labs. Almost half of the nation's warhead spending occurs in and through our state (fully half, by some methods of calculation). Enormous financial interests are involved. According to DOE, the current LANL contract alone is worth \$36.6 B.[23]

Campaign contributions flow from the labs to the state's congressional delegation, in quantities as great, or greater, as from any other source.[24] Among colleges and universities, the University of New Mexico is one the largest recipients of Pentagon money in the country.[25] In all these ways and many, many more, nuclear dollars speak very loudly in our impoverished state.

In fact nearly everybody who speaks publicly about LANL's economic impact is either being paid directly by LANL and its political allies (who are themselves supported by LANL) or is otherwise more or less hostage to the interests of the nuclear weapons establishment.

The New Mexico nuclear-military-political complex can make the career of any professional who challenges it difficult. Our capacity for independent thought is limited where the wide-ranging interests of the labs are involved.

Eisenhower's farewell warning about “the acquisition of unwarranted influence, whether sought or unsought, by the military industrial complex” is more than apt, as is his

related warning, that “the nation’s scholars” could become dominated by “Federal employment, project allocations, and the power of money.” Where is this truer than in New Mexico, where in any field there are only a handful of scholars at best?

Make no mistake: the nuclear military-political-academic complex can make career advancement (or even job retention!) difficult or impossible for almost any professional in this state who challenges it – any reporter, editor, teacher or professor, any non-profit director, or any state employee. It is no exaggeration to say that our capacity for independent thought is held hostage in each and every field which touches upon the core interests of the nuclear labs. *This in itself is a very negative economic impact that holds back New Mexico.* The labs keep New Mexico

The most important “pollution” from the labs is intellectual, political, and moral. The greatest barrier to economic development in northern New Mexico is our inability to turn away from The Bomb, admitting our mistake. Without turning *away* we can’t turn *toward* something else with enough vigor to accomplish anything. We drift, prisoners of somebody’s nuclear dream.

from thinking straight. They keep New Mexico dumb in both senses of the term: silent, and stupid. In the economic development game, stupid equals poor.

Putting it another way, we can say that the most important

form of “pollution” from our nuclear labs is intellectual, political, and moral. After many years of studying the economic impacts of nuclear facilities all over the U.S., Dr. William Weida, formerly chair of economics at Colorado College, concluded that the greatest single barrier to economic development in northern New Mexico, *the biggest barrier we face*, is our collective inability to turn away from the bomb, to recognize that a far-reaching mistake has been made, a mistake both economic and moral. Without turning *away* from our nuclear addiction – which plainly isn’t doing us any good – we can’t turn *toward* something else with enough political and entrepreneurial energy to make any real progress. So we don’t. We drift, prisoners of the nuclear dream. We have, in other words, an addiction. To change the metaphor, we are a “kept state,” kept barefoot and pregnant, pregnant in this case with plutonium pits. It’s an offensive analogy, but our condition is unspeakably rude.

Put yet another way, our state’s

relationship to its federal labs – our largest institutions in dollar terms – is like the “Stockholm Syndrome,” a condition of psychological servitude in which hostages identify with their captors. It isn’t the

Having lots of LANL jobs requires a high military budget, which sucks money from other federal programs and incurs long-term costs, including lots of other jobs.

psychological aspect that most concerns us here, though that is certainly real enough. It is rather the material conflicts of interest that ramify throughout our communities and institutions

that collectively keep us from thinking clearly about the nuclear labs and their effects on the state, and keep us from thinking about how to build a political consensus around human development in New Mexico. Coerced, impoverished, and in many cases frankly bought off, we nurse the tired old myths of the Cold War and the economic development myths of the 1950s. Nobody challenges those myths. It’s time we did.

LANL precludes other economic options

Despite all this (or perhaps because of it), I still hear the cry: “But doesn’t LANL provide a lot of jobs?” Sure it does. It’s just that those jobs come with very big strings attached. All those strings together sum up to something like servitude. Something like colonization, conquest, or takeover.

We have discussed some of those strings from the local perspective, and we’ll see more of them in a moment. But now look at the national picture: *having lots of LANL jobs requires a high military budget, which sucks money from other federal programs and incurs long-term costs like massive government debt and ever-increasing pollution.* In other words, LANL jobs have opportunity costs, huge ones, and these include other possible New Mexico jobs, a very great lot of them.

If you think about it, the choice to re-start nuclear weapons production, for example – a choice which increasingly supports the jobs at LANL – is not just a single itty-bitty policy choice. It entails choices about the nature and direction of the federal budget as a whole, *as well as the shape of the U.S. economy and foreign policy.* Since over half of New Mexico’s economy is directly or indirectly dependent on federal spending, the overall thrust of the federal budget will affect what happens in our state mightily.

Recall that LANL is more than three

times its Cold War size (in constant dollars). Such huge growth does not come about without accompanying growth in the U.S. military budget. LANL’s budget is now about 1/400 of U.S. military spending, and whatever the precise relationship between the two over time in the past or in the future may be, we can be assured that LANL appropriations require an aggressive nuclear policy, the only purpose of which is to support an overall aggressive military posture, which is very expensive indeed in every way.

Large LANL appropriations require an aggressive military and foreign policy.

Annual U.S. military spending, not counting Homeland Security, is now a little more than \$900 B, roughly 7% of the gross domestic product (GDP) or about \$7,700 per U.S. household. Roughly one-fifth of this is new federal borrowing. Another fifth of this \$900 B in military spending is interest payments on past military-related debt, which are rising.

Annual U.S. military spending is now \$7,700 per U.S. household.

Again excluding homeland security, military spending has grown to comprise *two-thirds of all discretionary spending* and about one-third of all federal outlays.[26] By way of international comparison, U.S. military spending equals that of all other nations in the world combined.

So before we can even think about economic development in New Mexico, we must come to grips with the reality that funding the U.S. military at such a grandiose scale

Nuclear weapons and the security paradigm they stand for are utterly incompatible with sustainable economic development in New Mexico – or anywhere.

strongly constrains the investments we in New Mexico can make in education, infrastructure, and every other public purpose. These monies come, for the most part, right out of our paychecks every one of them. They disproportionately affect working people. New Mexicans will pay \$11.0 B in federal taxes this year,[27] of which about \$4.85 billion will go to the military, including to our own labs and bases. The military bases turn out to be roughly a break-even proposition; the nuclear labs are our federal pork “profit.” These taxes come from a broad base and go to a narrow group of recipients.

We *could* build an energy-efficient infrastructure in this country that would enable us to help prevent or cope with the worst effects of hydrocarbon shortages and

the catastrophe now stalking our children and all the species in the world from global warming. Since we *must* deal with these problems, and they being huge, we *will* invest trillions of dollars. (The alternative – not doing so and instead suffering a “long emergency” of economic, environmental and societal collapse – would of course cost much more than that, but no one would be able to pay it.) But if two-thirds of federal discretionary spending keeps going to the military and to LANL, to the tune of \$7,700 per household, isn't our goose pretty much cooked?

For reasons like these, nuclear weapons and the security paradigm they stand for are utterly incompatible not only with economic development in New Mexico, but economic development anywhere – except for a few. Economic development requires first survival.[28]

The price we pay for those few high-paying jobs at LANL includes what could be nothing less than a full-employment program for New Mexicans based on investments in human needs, sustainability, education, and the prevention of an environmental catastrophe that threatens every living thing on the planet. Of course that would be a different kind of national security, and it would have very different economic consequences for New Mexico and the communities around LANL. Better ones.

The myth that LANL is an economic boon leaves out not only our historical decline relative to other states and the present-day situation that has resulted from it. It also leaves out our choices about the future, especially the fact that we actually *could* choose. That may be the best-kept secret of all: we have a choice. We don't have to submit. The abuse will only get worse until we say learn to say no.

The policy choices aren't, in the end, all that complicated. They resolve themselves into two quite different approaches to national security and to regional development. One emphasizes death-oriented solutions to the problems we face as a society (as in, “how can we arrange to be able to blow things up better?”); the other, life-oriented solutions (as in, how can we provide accessible jobs and protect the environment, now in the initial stages of global collapse, while protecting households from the negative effects of energy costs?).

New Mexico's non-military dependence

If New Mexico is dependent on its federal military spending, it is twice as

dependent on its non-military spending, because the state receives fully twice as much non-military as military federal spending, even with Veterans Affairs (VA) spending included in the latter. Geographically, Los Alamos is the only NM county in which military spending exceeds non-military. *Transferring resources from military to non-military programs would benefit most NM*

New Mexico is twice as dependent on non-military as military federal spending. Geographically, Los Alamos is the only New Mexico county in which military spending exceeds non-military. Transferring resources from military to non-military programs would benefit most NM counties right now.

counties right now.

Since almost \$5 B in federal taxes taken from New Mexicans is used to pay for the military, you might wonder which counties actually show a “military profit” in the federal redistribution (i.e. pork) game. *As it turns*

out, most NM counties pay more in taxes for the military (mostly in the form of payroll taxes) than they get back in military spending. This is true even when commuting between counties by military (and laboratory) employees is considered.

New Mexico's military spending, and the economic stimulus it provides, is largely concentrated in just a few places: at the state's four military bases, the associated nearby contractors, the two big nuclear labs, and the Eddy County nuclear waste disposal site (WIPP).

Most New Mexico counties pay more in taxes for the military than they get back in military spending.

Let's look at three counties near Los Alamos, beginning with Taos County. Of \$222 M in total federal spending in Taos County in 2004, about \$8.3 M or 3.7% came from commuters to LANL, \$7.7 M or 3.4% from other military spending, and \$8.8 M or 3.9% from the Department of Veterans Affairs. In all, only 11% of Taos County federal spending was military-related, even including the VA. The rest – \$197 M – lies

Even in Rio Arriba County, non-military spending is much more important than military spending, including LANL.

in programs which are increasingly being cannibalized to pay for other federal priorities, especially the military, which includes as a key enabling element the restart of nuclear weapons production at

LANL.

Do LANL jobs provide a net economic

stimulus for Taos County, then, if their costs in other federal programs – impossible to quantify, but real – are included? I doubt it very much. LANL employees and contractors directly contribute only 1% of Taos County's total personal income. This is important for the people involved, but not for so many others.[29] Contrariwise, the cost to them through the federal priorities they embody is great. Federal programs needed and used by Taosenos must be constrained or cut to support the military, including LANL.

Rio Arriba County is far more dependent on federal spending than Taos County and upon LANL in particular. Some 36% (\$175 M) of its \$491 M in 2004 federal spending originates on “The Hill,” mostly in the form of commuter salaries. LANL spending accounted for fully 20% of Rio Arriba County's total personal income, with non-military federal spending accounting for another 36%, making the federal government the direct or nearly-direct source of 56% of all county income. Again, note that even in Rio Arriba County, non-military spending is much more important than military spending in all forms, including that from LANL.

LANL's high salaries badly distort the regional labor market, impoverishing all other enterprises.

Santa Fe County received \$246 M in LANL monies in 2004, again according to LANL. Other federal spending in the County was almost six times greater, however, for a total of \$1.43 B that year. With \$4.8 B in total personal income in the County in 2004, LANL's direct contribution (5.1%) would certainly be noticed if it suddenly all disappeared, but for how long? One or two years?

More reasons why the myth is wrong

We've seen that the myth of military economic dependence in New Mexico, and of benefit from LANL in particular, doesn't jive with New Mexico's history or with current realities. We've briefly discussed some of the reasons why this might be the case. There are, however, many more such reasons:

- LANL's high salaries, necessary to attract talented individuals to nuclear weapons work, badly distort the regional labor market. These salaries attract many of the most ambitious and talented workers in the region, impoverishing all other enterprises of their talents and skills. In professional categories LANL's salaries can easily be twice or even three times regional norms,

and LANL offers a stellar benefits package as well. Small businesses want and need the very labor force LANL wants, but they cannot compete successfully for it. The ranks of potential entrepreneurs, especially the very important subgroup with regional loyalties, are thinned in exactly the same way.[30]

- LANL employees, being paid much more than workers elsewhere, help drive up home and land prices, especially in some markets of interest to local people.

- LANL's technology will never create many spin-off businesses because most of LANL's work is a) secret, b) frequently involves unsafe, non-commercial materials (e.g. plutonium, beryllium) and c) is unique to nuclear weapons and other "cost-is-no-object" national security missions. Many other factors also limit the transfer of

LANL's technology will never create many spin-off businesses, especially in New Mexico.

technology from LANL.[31] The most powerful of these have to do with a syndrome of poverty, income disparity, and lack

of political enfranchisement that affects virtually every New Mexico institution.

- Many of LANL's employees are highly specialized scientists who have little or no ready contribution to make to the civilian economy when they retire or are laid off. Furthermore, after long acculturation to LANL's free and easy ways, many have no interest in more hardscrabble environments. Consulting to LANL keeps many busy after formal "separation." Few have the skills, or want to become, New Mexico entrepreneurs.

- Many of LANL's most expensive procurement needs are highly specialized, unavailable from the few and generic industrial vendors supported by our small regional markets.

- LANL creates danger. LANL's primary mission, in fact, is just the production of danger for others. It is no wonder that some of that danger leaks into the here and now. The probabilities of various possible kinds of dangerous events are *risks*; risks multiplied by *consequences* are *hazards*. Hazard *perceptions* affect markets, including real estate markets. One serious accident or serious incident of sabotage or terrorism at LANL could affect property values in Los Alamos and White Rock, in Las Campanas, and elsewhere downwind.

LANL's primary mission is the production of danger and fear.

- LANL pollutes all the time. The total amount of pollution permanently emplaced at LANL increases every week, and the rate of increase is expected to increase dramatically as LANL ramps up industrial-scale plutonium manufacturing operations. LANL's nuclear dump is unlined, unlicensed, unregulated, and is now

The total amount of pollution permanently emplaced at LANL increases every week.

managed by the nuclear weapons manufacturing directorate, not environmental

scientists. Needless to say, the economic impact of LANL's pollution is not defined by analytical concentrations but rather by perceptions and therefore does not begin only above "acceptable" analytical standards of pollution. The combination of perceived danger and pollution can affect not just property values but also location decisions for firms, as well as some types of tourism choices. Perceptions combine to form *reputation* (how a region is viewed from the outside) as well as *identity* (how it is perceived from the inside). *Both are major determinants of a region's economic potential*. Fostering a positive reputation is a major enterprise within at least two state departments (Economic Development and Tourism) as well as the Governor's office itself. It is a delicate affair, given the sorry state of New Mexico's society. Our attractiveness counts in location decisions *relative to other destinations*, and when enough weight of bad news is placed on the balance scale of relative attractiveness, the pan can move quickly from a high to a low position.

Social cohesion is frequently the first casualty of any polluting facility.

- All facilities which are large relative to their hinterlands can produce negative social impacts. These social impacts are likely to be exacerbated if there are unusually high salaries or unusually high salary differentials within the facility, or if there are a large number of people who move in to work at the facility from afar. They can be worsened by pollution, which affects those who live nearby more than those who can afford to live far away. As William Weida has pointed out, social cohesion is frequently the first casualty of any large polluting facility in a rural area. This cohesion is usually the most precious resource in the community, necessary for autonomous, effective solutions to any and all community-wide problems – including the economic development problem.

- LANL, which is secret on the one hand and devoted to weapons of mass destruction on the other, produces jobs without public meaning – especially any positive one. Hence it produces no positive "story" or identity for the community as a whole. A coherent "story" or self-understanding in a community enables that community to rally energy and resources to solve problems. How much more is this true when a facility: a) is not situated in one's own community, as is the case for about a third of LANL's workers; b) belongs to and is run by a foreign culture (as is the view, to a greater or lesser extent, in the Indian communities surrounding LANL); c) is run primarily by members of another race (as is the case for Indian and Hispanic New Mexicans); d) has thousands of upper-level staff who have moved here from afar; and e) does work which one is not truly proud of. LANL, in other words, can never be a source of community pride. This is true for fundamental reasons and will always be true despite endless efforts by community relations workers to repair or mitigate the problem. In fact there is anecdotal evidence that work at LANL is experienced as shameful by some employees. Shameful or not, depression and stress are important major public health problems in Los Alamos and suicide rates are high; attempted youth suicide was recently labeled the most important public health problem in Los Alamos in County Council testimony.

In this article we've only barely scratched the surface of many key issues regarding LANL's economic benefit or harm, and we've had to proceed almost from first principles, in part because there is essentially no work being done on this subject in this state. Despite its poverty, the state has only a handful at best of economists actively working on how to remedy our state's problems. For them, professional norms virtually require highly-conservative neoliberal assumptions that are really more embedded political choices – and also career choices – than anything else. Many of those assumptions, nearly always unstated, are just flat wrong. On top of this is the direct and almost all-powerful influence of the labs and their political allies, as noted above.

The upshot is an embarrassed silence. For the most part there is no public thinking about these issues at all. No one wants to cross the powerful forces that use and abuse us, or to discuss the state's real problems too openly, which could make our remaining assets seem less "enchanted" to investors.

New Mexico is unlikely to improve much until that silence is broken and until, above all, the voices of the poor are heard in the halls of power. Heard – and attended to, made central in public policy. The exclusion of the poor is the central political problem in New Mexico. Neither can any significant progress be made until we demand – not just meekly ask, but effectively demand – an end to the state’s tacit support for institutions of mass violence, which impoverish and degrade us.

The exclusion of the poor is the central political problem in New Mexico.

Notes

¹ Unfortunately, the social and political components of the problem are usually banished from discussion for political reasons. This has the effect of reducing regional economic analysis to a kind of mindless accounting with little ability to inform progressive policy.

² Raw data provided by LANL and from laboratory tables, DOE congressional budget requests, and for the Manhattan Project years calculated from Kevin O’Neill in Schwartz et. al., *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons since 1940*. Present value calculated using national consumer price index, Bureau of Labor Statistics.

³ Corporation for Enterprise Development, “2006 Development Report Card for the States.” I do not have more recent data.

⁴ National Science Foundation, *Science and Engineering Indicators 2006*, <http://www.nsf.gov/statistics/seind06/> is the source of this and subsequent information, down to “high-technology” employment in New Mexico. I calculated the efficiency of R&D in attracting venture capital from source tables of NSF data.

⁵ LANL, Office of Management and Budget, and DOE laboratory tables, op. cit. These mid-2006 figures include gross receipts taxes, profits (“fees”), and pension fund contributions. The latter two leave the state immediately.

⁶ Accurate personnel figures for LANL are elusive and often contradictory. The figure cited is adapted from NNSA (Crandall briefing, 2005) and LANL (Data Profile 2006), and includes 3,887 technical staff members, 1,828 technicians, 2,510 administrative workers, 386 post-docs, 375 graduate students, an estimated 3,040 contractor employees (KSL, PTLA, Butler, Comforce, Plus, Weirich), plus another 974 (to make an even 13,000) including consultants (raw figure: 783, many very part-time) and “special program guests” (raw figure: 506, many assumed to be very part time), and construction workers. I have subtracted a round 1,000 workers from this 13,000 to reflect the planned attrition and subcontractor layoffs

which have been in progress for some months now. Further layoffs and attrition are expected next year. Should an increase in construction occur absent new funding sources, or should the LANL budget fail to keep pace with inflation, further shrinkage will occur. As of late 2006, both are likely.

⁷ LANL’s 2005 “Community Impact” fact sheet shows \$538 M in procurement spending, of which \$398 M is spent in northern NM. Of this, 81% is spent in Los Alamos County. I believe most of this spending is for contract employees included in the employment figures given in note 2. Detailed data is not available, but what is left after this double-counting is removed will include categories like wholesale goods brokered through NM sellers, which properly counts as “NM procurement” but provides little regional fiscal stimulus.

⁸ Dr. William Weida, Global Resource Action Center for the Environment (GRACE), personal communication.

⁹ Corporation for Enterprise Development, op. cit.

¹⁰ For this and much more with sources, see Los Alamos Study Group, “New Mexico’s Economic and Social Health: Existing Policies are Failing,” <http://www.lasg.org/NMecon05.htm>. See also Annie E. Casey Foundation, “Kids Count,” at <http://www.aecf.org/> and for example Leann Holt, “Report: N.M. Has High Child Poverty,” *Albuquerque Journal*, 6/27/06.

¹¹ Garcia, Patricia. “State’s social health ailing, study finds,” *The Albuquerque Tribune*, 11/17/03.

¹² Cited in Hannah Arendt, *The Human Condition*, 1958, p. 44, U. Chicago Press.

¹³ Los Alamos Study Group analysis of the new LANL operating contract by Beth Enson and Damon Hill. The contract can be found at <http://www.doeal.gov/laso/NewContract.htm>.

¹⁴ Los Alamos Study Group, “New Mexico’s Economic and Social Health: Existing Policies are Failing.”

¹⁵ Bernstein, Jared et. al., “Pulling Apart: A State by State Analysis of Income Trends,” Center on Budget and Policy Priorities/ Economic Policy Institute, 2000.

¹⁶ See Tax Foundation, <http://www.taxfoundation.org/> and also the Census Bureau, “Consolidated Federal Funds Report” <http://harvester.census.gov/cffr/>.

¹⁷ Study Group, “New Mexico’s Economic and Social Health: Existing Policies are Failing,” op. cit. We welcome more research in this area, at a minimum to better pin down long-term trends.

¹⁸ Rio Arriba County received about \$4,260 per capita from LANL in 2004 (data from LANL’s “Community Impact” fact sheet, which may double-count some procurement; see note 4), than any county except Los Alamos itself. Santa Fe County LANL spending was by comparison only about \$1,840 per capita in 2004, 43% as much.

¹⁹ New Mexico Department of Health, “2004 Social Indicator Report,” http://www.health.state.nm.us/pdf/Social_Indicator_NM_2004.pdf

²⁰ Angela Garcia, in “Land of Disenchantment,” *High Country News*, 4/3/06, suggests that proximity to Los Alamos is a major cause of drug abuse in Rio Arriba County.

“Why heroin? Why here? Ask any Hispano, addict or not, and you are bound to get an earful.

The first reason is probably the least surprising: the great disparity of wealth in northern New Mexico. The Española Valley itself has never been a wealthy area, but in recent decades tremendous amounts of money have poured into nearby towns, such as Santa Fe and Los Alamos.

Severe drug addiction in poor communities adjacent to affluent ones is a pattern that social scientists have documented worldwide. Some credit the struggle of living in severe poverty while others enjoy lives of ease. Others describe the stigma of crossing the lines between rich and poor, and the abuse that frequently accompanies this crossing.

Anthropologist Philippe Bourgois has documented this pattern of drug use in New York and San Francisco — cities where neighborhoods of extreme wealth and poverty border each other. Harmful public policy weakens local economies and the social welfare system, and leads to the vast disparities in incarceration rates among different races and ethnicities.

This creates what Bourgois calls “an aura of apartheid.” Even neighborhoods that were once vibrant and healthy are socially and economically marginalized; drug use becomes endemic.

Last year, the World Health Organization launched the Commission on the Social Determinants of Health. Echoing the long-held view of local activists, researchers and health providers, the commission found that living conditions — social, political and economic — play a major role in drug addiction. “It is poverty and social inequality that kills,” says Nancy Krieger, professor of public health at Harvard University. According to Krieger, inequality “deprives individuals and communities of a healthy start in life, increases their burden of disability and disease, and brings early death.”

In the Española Valley, the inequality is palpable. Many locals blame the Los Alamos National Laboratories for the region’s deepening chasm between rich and poor. Since the 1940s, the Labs have demanded a local “nonprofessional” work force — maintenance and security crews, for example. Today, the Labs are the largest

employer of Valley residents. During rush hour, the Old Los Alamos Highway, which connects Española with the “Atomic City,” is bumper-to-bumper with frustrated commuters.

Meanwhile, back at home, many of the old family farms lie untended.

Los Alamos is the wealthiest county in the United States, with a median household income of over \$93,000 and a below-poverty rate of under 3 percent. Rio Arriba County, which encompasses much of the Española Valley below, is among New Mexico’s poorest counties, with a median income of \$29,000. One in five Valley residents lives below the poverty line.

²¹ “A spokesman for the Governor said Bowles will help the state advance New Mexico’s standing as a national leader in the high tech field... ‘Tom’s job will be to help the state get more involved in the high tech industry and to act as a liaison between the state and labs and the industry,’ said Jon Goldstein in the governor’s office.” “Governor taps [former (LANL) Chief Science Officer Thomas] Bowles as science advisor,” Roger Snodgrass, Los Alamos Monitor, 7/7/06.

²² LANL Industrial Business Development Program Office documents, 2001.

²³ See Los Alamos Study Group, “Competition - or Collusion? Privatization and Crony Capitalism in the Nuclear Weapons Complex: Some Questions from New Mexico,” <http://www.lasg.org/NNSAPrivatization.pdf>, and more broadly, “About the LANS Partners,” at <http://www.lasg.org/technical/LANS.htm>.

²⁴ See current contribution data for New Mexico’s congressional delegation at <http://www.opensecrets.org/>.

²⁵ UNM ranked #15 in Pentagon money in 2001; see analysis by Darwin Bond-Graham at <http://www.fiatpax.net/profiles.html>.

²⁶ U.S. military spending in FY06 was at least \$706.5 B in discretionary spending, in addition to about \$179 B in mandatory spending (namely military interest payments, part of \$399 B in estimated interest to be paid in FY06). Total discretionary spending in FY06 was estimated to be about \$1,032 B (Table 8.7, p. 154, *Historical Tables*, Budget of the U.S. Government FY2007). Total mandatory spending for FY06 was expected to be \$ 1,677 B (Table 8.5, p. 142, op. cit.).

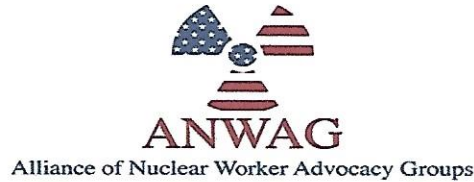
²⁷ The Tax Foundation, <http://www.taxfoundation.org/>

²⁸ These themes are expertly and impressively developed in detail in the UK Treasury Department’s “Stern Review of the Economics of Global Climate Change,” October 30, 2006, at http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm.

²⁹ Bureau of Economic Analysis, <http://www.bea.gov/bea/regional/bearfacts/countybf.cfm>

³⁰ A second labor market effect occurs in more rural areas near military bases: spouses of base personnel enter these local labor markets and often competing successfully against local competitors for a variety of reasons. In effect, “middle-tier” local employment options can close for aspiring poor applicants in small towns.

³¹ The author and Lisa Oberteuffer wrote an appreciation of this and related issues for Concerned Citizens for Nuclear Safety in 1992: “The Conversion Of Los Alamos National Laboratory To A Peacetime Mission: Barriers And Opportunities.” Available from the Study Group.



July 24, 2018

The Honorable Rick Perry,
Secretary,
U.S. Department of Energy
1000 Independence Ave., S.W.
Washington, DC 20585

Subject: Curtailing access to the Defense Nuclear Facilities Safety Board

Dear Secretary Perry:

The Alliance of Nuclear Worker Advocacy Groups (ANWAG) read with deepening concern the July 22, 2018 ProPublica article, *Trump Administration Neuters Nuclear Safety Board*.

As stated in our February 17, 2003 press release, since its formation in 2003 the focus of ANWAG has been on the implementation of the Energy Employees Occupational Illness Compensation Program Act of 2000 (EEOICPA), as reformed. However, our broader mission,

"...is to protect impacted nuclear workers and citizens by presenting a unified voice of our membership to ensure government accountability, public education and participation on nuclear industry and defense operations issues, including cleanup, community and worker health and safety, waste management, benefits protection for retired workers, environmental justice and whistleblower protection."

DOE Order O 140.1, *Interface with Defense Nuclear Facilities Safety Board*, was published on May 14, 2018. ANWAG is confused why the Department of Energy (DOE) wants to limit the Defense Nuclear Facilities Safety Board's (DNFSB's) access. DNFSB and the National Nuclear Security Administration (NNSA) have similar missions when it comes to protecting the public and the workers. However, it is our understanding that the DNFSB has routinely acted more independently thus making it possible for them to identify safety issues that may not be identified by the NNSA which is more closely tied to operators of the weapons facilities and the DOE. This independence is of paramount importance to the workers whose very lives depend on this beneficial interaction.

NNSA's Office of Safety, Infrastructure and operations states the,

Enterprise Stewardship supports NNSA's mission by ensuring the safety, security, and reliability of the nation's Nuclear Security Enterprise. In addition, the Office ensures that the workers, the environment and public are protected. (Emphasis added).

DNFSB's mission is

...to provide independent analysis, advice, and recommendations to the Secretary of Energy to inform the Secretary, in the role of the Secretary as operator and regulator of the defense nuclear facilities of the Department of Energy, in providing adequate protection of public health and safety at such defense nuclear facilities. (Emphasis added).

Providing protection to the public and, therefore, to the workers is the common ground between DOE and DNFSB. ANWAG's perspective, from reading DNFSB's reports and recommendations, is that it does not appear that the DNFSB has acted in a way that would be considered adversarial to the DOE's activities. Instead our perspective is that DNFSB's intent has always been to assist and provide the best expert advice to DOE on a variety of issues. Our forefathers thoughtfully provided a system of checks and balances in our federal government. We should not do any less in the management of our nation's nuclear weapons complex. We should not tie the hands of these agencies.

It is ANWAG's opinion that the DOE's order will prevent both the DNFSB and the NNSA from fulfilling their individual and interactive missions that provides protection to the workers and to the public.

We also want to bring to your attention a possible breach of procedures. The DOE Order specifies five criteria where access to documents can be denied to the DNFSB. They are,

- (a) The person requesting the information has not been granted an appropriate security clearance or access authorization by the Secretary*
- (b) The person requesting the information does not need such access in connection with his/her duties.*
- (c) The request is for predecisional (sic) or otherwise privileged records, for example, attorney-client, attorney work product, procurement-sensitive, or deliberative process draft documents that have not been approved for release; or to participate in deliberative meetings or discussions supporting the development of predecisional (sic) or other process draft documents that have not been approved for release. NOTE: Such documents should be considered on a case-by-case basis.*
- (d) Release of the requested information would violate the Privacy Act (5 U.S.C. § 552a).*
- (e) The requested information does not have a reasonable relationship to the functions of the DNFSB as enumerated in the Atomic Energy Act, such as information that does not pertain to a Department of Energy defense nuclear facility, as defined in Section 318 of the Atomic Energy Act, as amended (42 U.S.C. § 2286g).*

However, the statute only allows 2 instances where access can be denied, <https://bit.ly/2A2BQQK>

§ 2286c

(b) Access to information.

The Secretary of Energy may deny access to information provided to the Board to any person

who—

(1) has not been granted an appropriate security clearance or access authorization by the Secretary of Energy; or

(2) does not need such access in connection with the duties of such person.

We are concerned that DOE may have overstepped its authority by adding three additional reasons why access can be denied to a DNFSB member. The proposed additions seem to add even more subjectivity making it even less clear who has access and what constitutes appropriate duties.

The Department of Labor (DOL) is the federal agency responsible for implementing EEO/PCA. The National Institute for Occupational Safety and Health is responsible for reconstructing radiation dose. Both agencies have an advisory board which have complied with the Privacy Act. In a brief review of the DNFSB's reports, ANWAG has not found any instances where an employee was identified or where classified information was leaked.

ANWAG respectfully requests that DOE Order O 140.1 be rescinded. The safety of the workers and the public is paramount and that will only occur if the DNFSB and their employees are allowed to continue to act independently and to have access to all documents they need to perform their stated mission.

Sincerely,



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