Expanded Plutonium Pit Production
Expensive, Unnecessary, May Degrade National Security

Los Alamos Lab "Cleanup"
Real Cleanup is Needed to Protect Water Resources

A New LANL Site-Wide EIS is Needed

Presentation to the Pajarito Group of the Sierra Club

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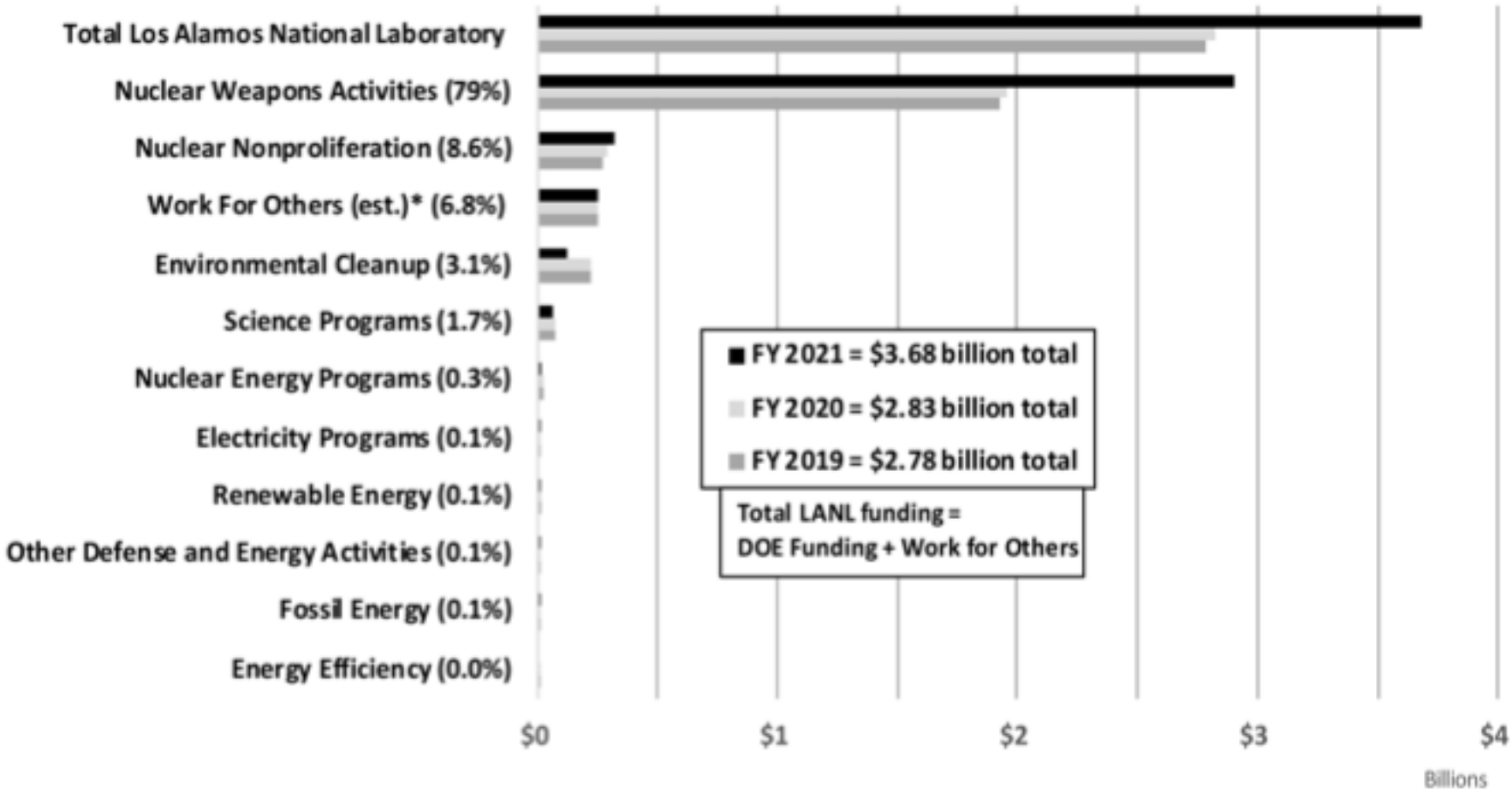
LANL Central Mission

Los Alamos National Laboratory
FY 2021 Congressional Budget Request
(In billions of dollars)

nuclear watch new mexico



Notes: The percentages given are of the total LANL Budget for FY 2021.
*"Work For Others" is for other than the Department Of Energy (e.g., Depts. of Defense and Homeland Security, the FBI, CIA, etc.) and based on past years is estimated at $250 million annually.

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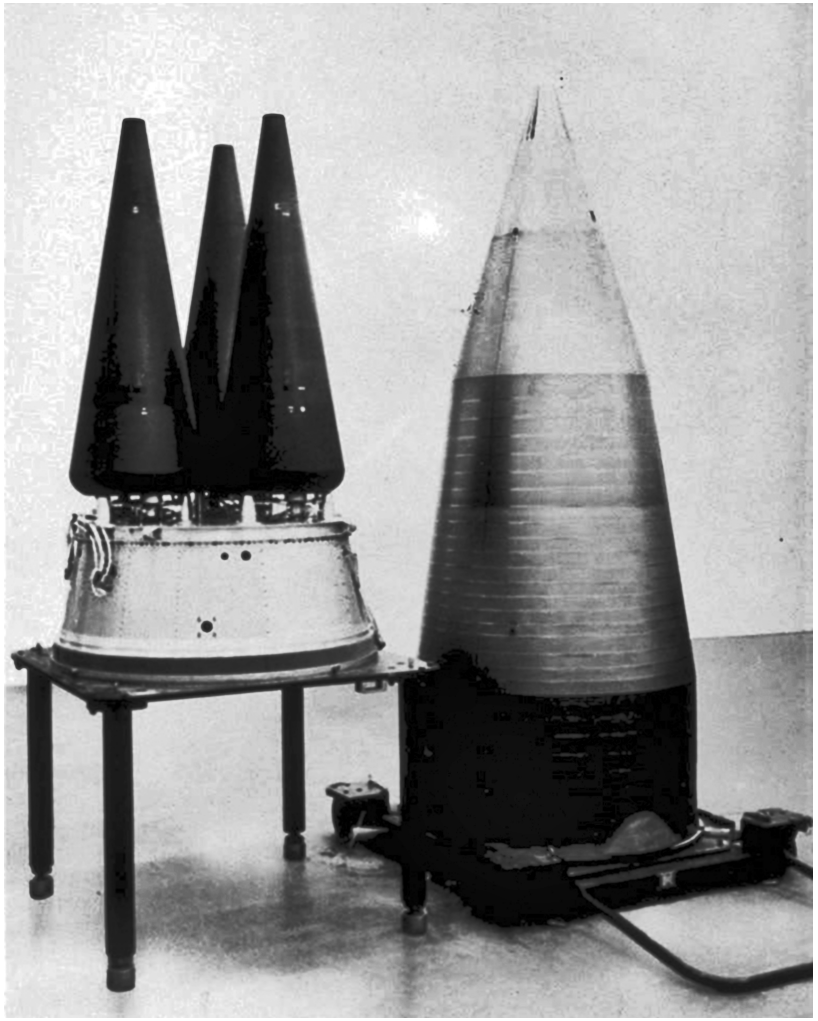
$1.7 Trillion “Modernization”

- New ICBMs, Heavy Stealth Bombers, Cruise Missiles, Submarines
- Rebuilt Nuclear Warheads with New Military Capabilities
- Perpetual Cycle of “Life Extension Programs”



Deterrence?

Implementation of 2010 Nuclear Posture Review:

> "The new guidance requires the United States to maintain significant counterforce capabilities against potential adversaries. The new guidance does not rely on a "counter-value' or "minimum deterrence" strategy." Report on Nuclear Implementation Strategy of the United States, Department of Defense, June 2013

That is why we have thousands of weapons for nuclear warfighting rather than the few hundred needed for deterrence-only.

In turn, that is why we have expanded plutonium pit production.

What is a plutonium pit?

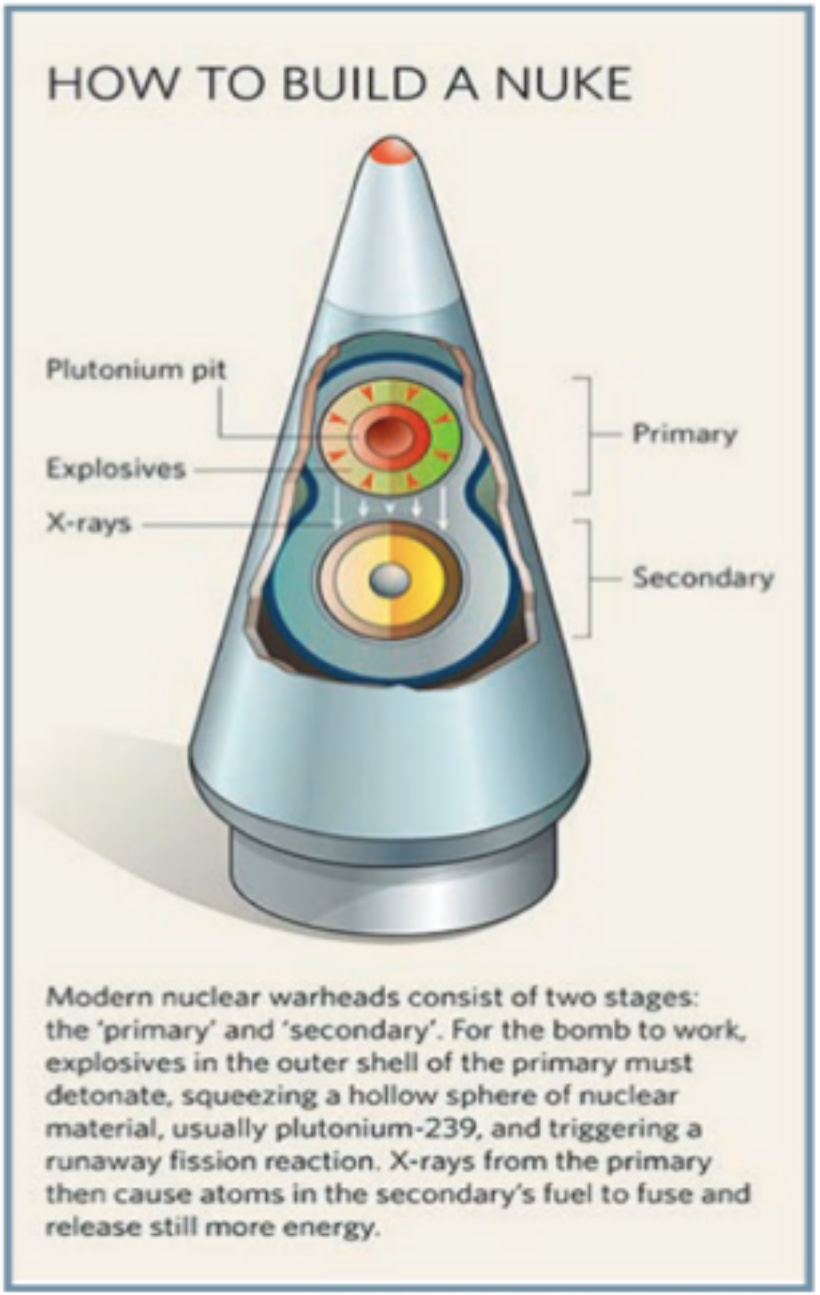


image credit: Nature

Expanded Plutonium Pit Production Is Unnecessary

- No production is scheduled to maintain the safety & reliability of *existing* nuclear stockpile.
- Up to 20,000 existing pits at the Pantex Plant.
- 2006 independent study concluded pits last at least a century. Livermore Lab: Pu >150 years.
- Shifting rationales: New pits were for new-design Reliable Replacement Warheads (~$10 billion, canceled 2008) & Interoperable Warheads (~$15 billion, canceled 2018).

… Unnecessary *(cont.)*

- NNSA's latest is the W87-1 ICBM warhead.
- NNSA's latest rationale on pit production:

  "…required capacity must happen even if the W87-1 program must, for some unplanned reason, deploy with a reused pit. If that were to be the case, then the pit manufacturing campaign would provide new pits for the LEP [Life Extension Program] or replacement program that follows the W87-1." (Dec. 2018)

- New "W87-like" pits, raising reliability & testing issues, possibly degrading national security.

National Nuclear Security Administration Plans

- Energy Dept on Government Accountability Office's "High Risk List" for 27 consecutive years.
- 30 or more pits per year at LANL by 2030.
- 50 or more pits per year at the Savannah River Site in South Carolina (SRS) by 2030.
- Total $43B over 30 years (estimates always low).
- Chronic nuclear safety infractions at LANL.
- 7 billion taxpayer dollars already lost at "repurposed" pit production facility at SRS.

Institute for Defense Analysis Report

"IDA examined past NNSA programs and could find no historical precedent to support starting initial operations (Critical Decision-4, or CD-4) by 2030, much less full rate production…

Of the few major projects that were successfully completed, all experienced substantial cost growth and schedule slippage; **we could find no successful historical major project that both cost more than $700 million and achieved CD-4 in less than 16 years."** (May 2019)

IDA Report *(cont.)*

"**Summary of Main Findings**

1. **Eventually achieving a production rate of 80 ppy is possible… but will be extremely challenging**.

2. **No available option can be expected to provide 80 ppy by 2030**…

3. Trying to **increase production at PF-4** [LANL's main plutonium facility] by installing additional equipment and operating a second shift **is very high risk**.

4. **Effort to identify and address risks is underway, but is far from complete**.

5. Strategies identified by NNSA to shorten schedules will increase the risks of schedule slip, cost growth, and cancellation."

Expanded Plutonium Pit Production = More Radioactive Wastes

- Pit production at LANL and the Savannah River Site = 57,550 cubic meters over 50 years.
- That is 53% of projected available capacity at the Waste Isolation Pilot Plant in southern NM.
- New pit production radioactive wastes would be given priority over cleanup.

Source: https://www.energy.gov/sites/prod/files/2020/01/f70/final-supplement-analysis-eis-0236-s4-sa-02-complex-transformation-12-2019.pdf, p. 65

What Activists Have Done

- NNSA has tried 4 times through National Environmental Policy Act (NEPA) processes to expand plutonium pit production. We beat them each time.

- In 2019 we won a SRS environmental impact statement, but a "programmatic" EIS (PEIS) is required:
  - To raise production from 20 pits per year to 80+.
  - Because a second site (SRS) is now involved.

- A 1998 Natural Resource Defense Council court order requires a supplemental PEIS for more than 50 pits per year (or 80 under multiple work shifts).

NEPA requires analysis of environmental and safety impacts

- Heavy contamination from pit production at both the Rocky Flats Plant and Los Alamos Lab.
- Incomplete cleanup at Rocky Flats. DOE plans to "cap and cover" rad & toxic wastes at LANL.
- Pit production will inevitably add to contamination, radioactive wastes and plutonium inventory at LANL and SRS.
- Chronic, unresolved nuclear safety problems at both Rocky Flats and LANL. How safe is SRS?

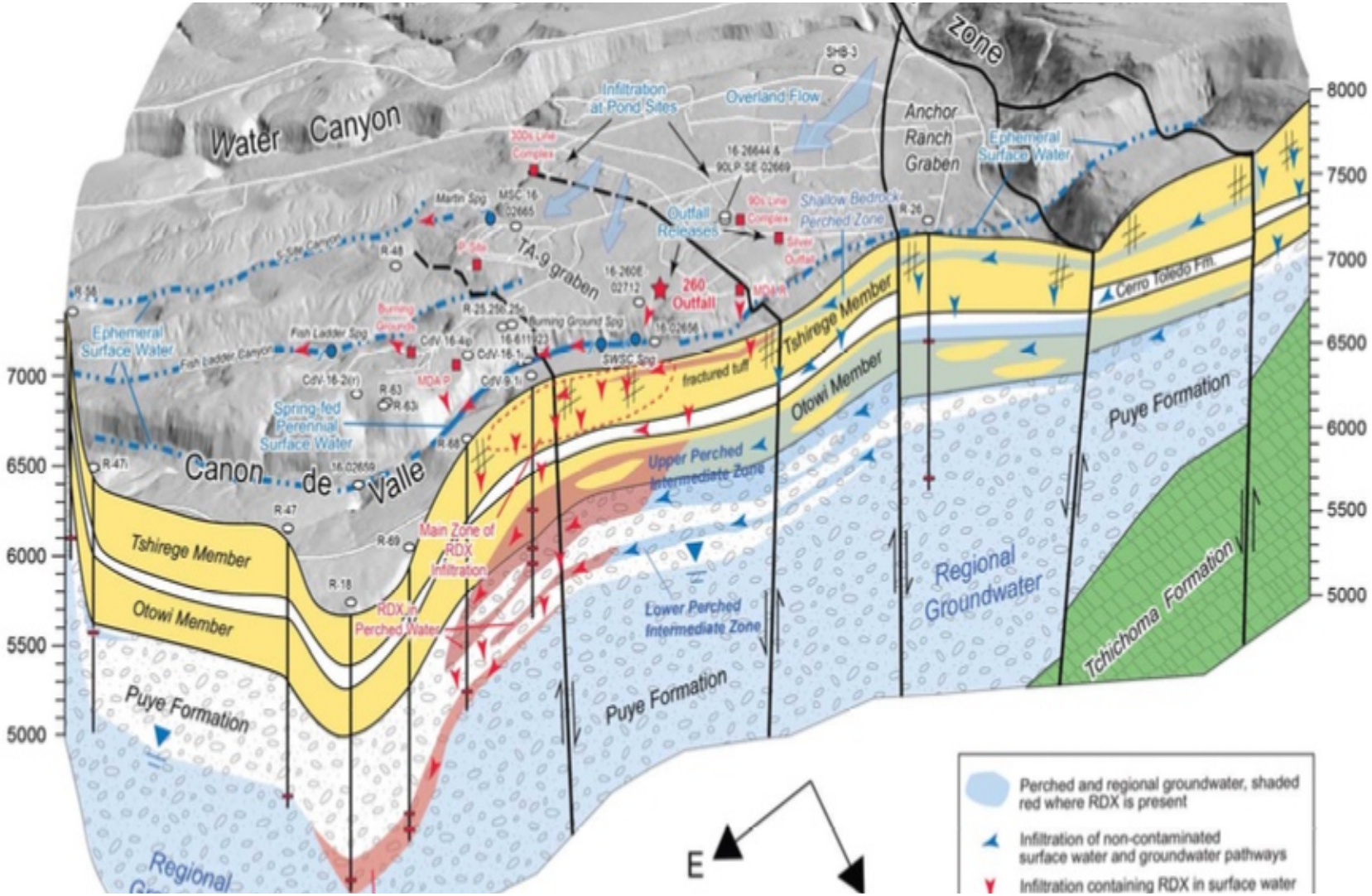
Cleanup - - Past Claims

- “Personnel from the Laboratory's Environmental Restoration Project have found preliminary indications of low levels of tritium in two perched groundwater zones - saturated areas that are segregated from the main aquifer by **impermeable geologic formations** - in Los Alamos Canyon.” (Emphasis added.)

http://www.lanl.gov/orgs/pa/News/121197text.html

Daily Newsbulletin
Thursday, Dec. 11, 1997

Many Multiple Paths to Groundwater

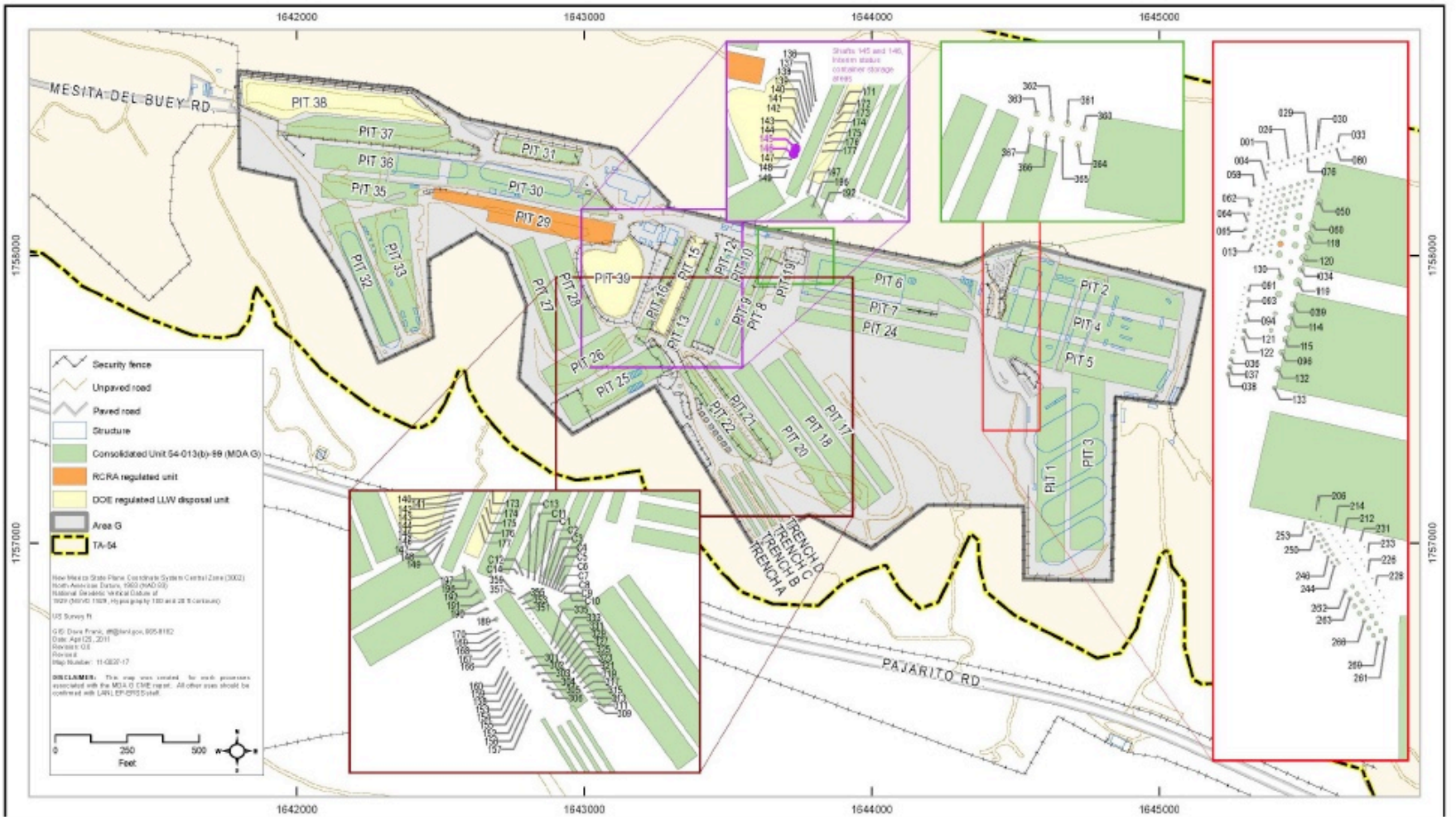


LANL 2005 Hydrogeologic report

"Future contamination at additional locations is expected over a period of decades to centuries as more of the contaminant inventory reaches the water table."

- http://www.worldcat.org/title/los-alamos-national-laboratorys-hydrogeologic-studies-of-the-pajarito-plateau-a-synthesis-of-hydrogeologic-workplan-activities-1998-2004/oclc/316318363
  Los Alamos National Laboratory's Hydrogeologic Studies of the Pajarito Plateau:
  A Synthesis of Hydrogeologic Workplan Activities (1998–2004)
  edited by
  Kelly A. Collins, Ardyth M. Simmons, Bruce A. Robinson, and Charles L. Nylander
  ER2005-0679 December 2005
  Page 5-15

Material Disposal Area G
32 pits, 194 shafts



Waste + Backfill = 1 Million Cubic Yards (Approx. Volume of Empire State Building)

Table G-3.4-1 (continued)

Pit No.	Dimensions (length × width × depth)	Rectangular Volume of Pit (yd^3)	Field-Measured Pit Volume (yd^3)	Estimated Disposed Waste Volume in Pit (yd^3)	Estimated TRU Waste Volume (yd^3)[a]	Estimated MLLW Volume (yd^3)[b]	Estimated Total Waste Volume (yd^3)[c]	Estimated Materials Suitable for Backfill (yd^3)
30	568 ft × 39 ft × 35 ft	42,843	28,716	13,464		28,716	28,716	14,127
31	280 ft × 52 ft × 25 ft	13,481	13,481	2702		13,481	13,481	0
32	518 ft × 74 ft × 51 ft	72,405	36,364	5367		36,364	36,364	36,041
33	425 ft × 115 ft × 40 ft	72,407	59,930	7776		59,930	59,930	12,477
35	363 ft × 83 ft × 40 ft	44,636	20,957	3361		20,957	20,957	23,679
36	435 ft × 83 ft × 43 ft	57,501	28,057	4491		28,057	28,057	29,444
37	731 ft × 83 ft × 61 ft	137,076	57,213	24,299		57,213	57,213	79,863
Totals		**1,491,253**	**898,924**	**200,986**	**54,536**	**844,388**	**898,924**	**592,329**

Note: Blank cell indicates this waste type/material is not known to be found in the pit.

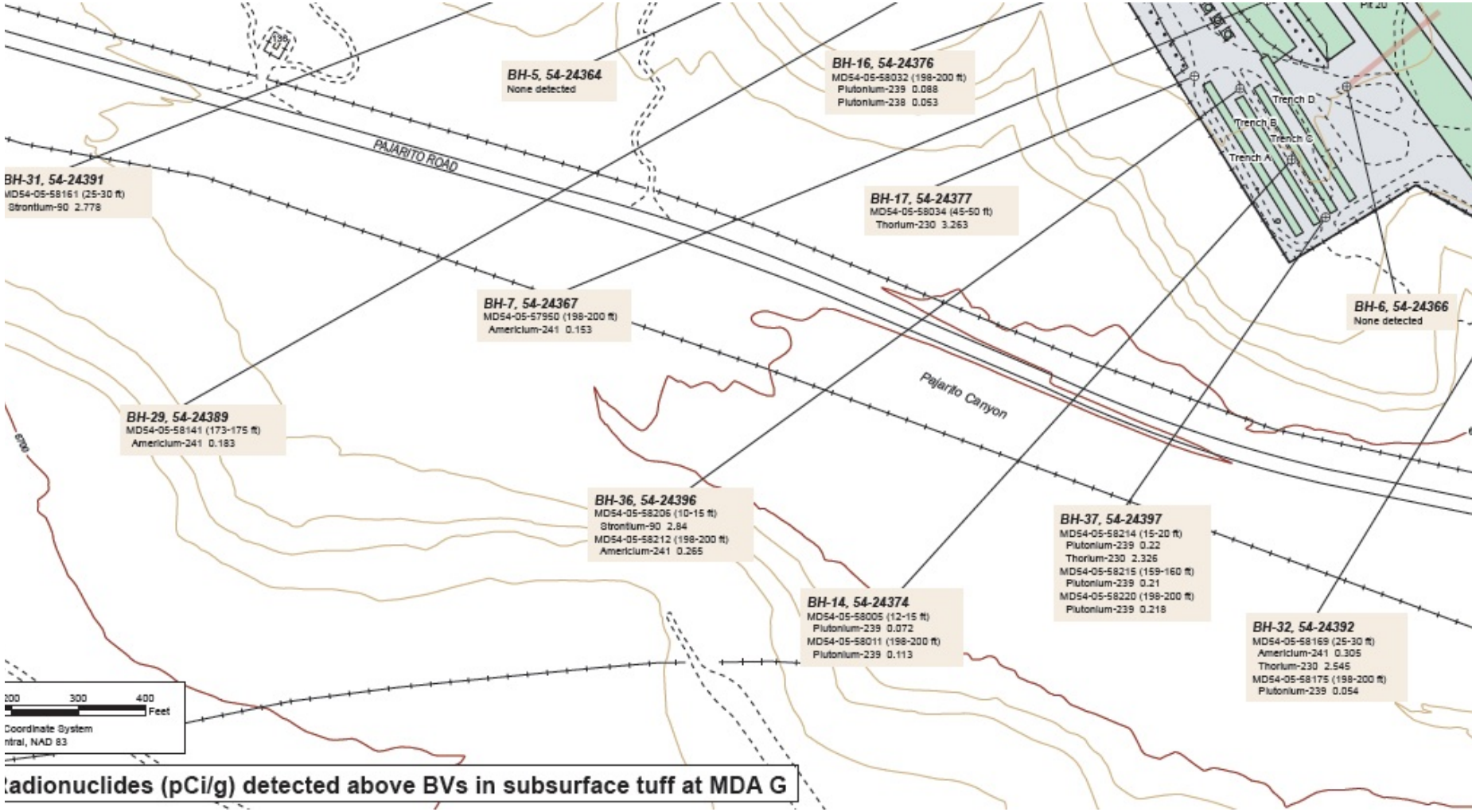
[a] Newly generated TRU equals volume of waste in pit containing TRU in Table 2.1-1.

[b] Difference between the field-measured pit volume and estimated TRU waste volume.

[c] Sum of estimated TRU waste volume and estimated MLLW volume.

[d] Difference between the rectangular volume of pit and field-measured pit volume.

Plutonium Has Already Migrated 240 Feet Below Surface of Area G



MDA G

- Barrels and cardboard boxes of waste are typically placed into unlined pits in lifts. Each layer of waste is covered with crushed tuff and compacted using heavy equipment.

Disposal pits

Genuine cleanup can be done!

An excavator inside a rolling enclosure at MDA B

Example of Modern Landfill for Rad Wastes: Waste Control Specialists in TX

Win-Win

- Unlike nuclear weapons programs, cleanup would be a win-win that permanently protects the environment and creates hundreds of high paying jobs.
- Push for full cleanup of Area G!

But the 2016 Consent Order is the problem

- An original 2005 Consent Order had a detailed cleanup schedule with milestones that the NM Environment Dept could enforce.
- The revised 2016 Consent Order specifically subordinated cleanup to DOE's desired budget instead of cleanup driving the budget. For a detailed critique see https://nukewatch.org/why-the-2016-lanl-consent-order-should-be-renegotiated-1-10-21/
- As a result DOE added $900 million to LANL's nuclear weapons programs in FY 2021 (total $2.9 billion) while proposing to cut cleanup by nearly half (to $120 million).

DOE's Claim

2,100 contaminated sites were originally identified for action, ranging from small spills to large landfills.

>1/2

of legacy cleanup has been completed.

The Reality

- LANL > ½ complete? With respect to the number of sites, DOE and LANL picked the low hanging fruit.
- According to DOE Lifecycle Estimate, plans are to treat only 5,000 cubic meters of radioactive and toxic wastes.
- 800,000 cubic yards of radioactive and toxic wastes in Area G to be left permanently buried above groundwater in unlined pits and trenches.

A New LANL Site-Wide Environmental Impact Statement Is Needed

- National Environmental Policy Act regulations require that DOE evaluate a site-wide environmental impact statement at least every five years through a "Supplement Analysis." (10 CFR §1021.330 DOE NEPA Implementing Procedures)

- DOE prepared a Supplement Analysis in 2018 that excluded plutonium pit production and a 2020 Supplement Analysis that was pit production-specific.

- Both Supplement Analyses concluded that a new Site-Wide Environmental Impact Statement (SWEIS) for the Los Alamos National Laboratory (LANL) was not necessary.

Those two DOE decisions were wrong because the last SWEIS was in 2008 and much has changed since then, including:

- The extent of serious groundwater contamination is better known but still not definitive.

- Newly planned massive radioactive tritium releases.

- Calculated potential radioactive doses by the Defense Nuclear Facilities Safety Board orders of magnitude above DOE calculated doses.

- Planned expanded plutonium pit production with billions in construction, chronic nuclear safety problems and increased radioactive waste production with an uncertain path of disposal.

- Another major wildfire coupled with a new DOE Inspector General report that LANL is behind on wildfire prevention.

Site-Wide EISs are good for the Lab and the public

- In response to public comment DOE included wildfire analysis in a 1999 SWEIS and undertook wildfire mitigation measures.
- The 2000 Cerro Grande Fire burned within a half-mile of Area G which had some 40,000 barrels of plutonium-contaminated wastes.
- It could had been catastrophic had those drums burst with respirable plutonium across northern New Mexico.

Even LANL acknowledged the value of public comment

"It is a story of an EIS process, of helpful public comments, of a timely response ...

…then a great fire, called Cerro Grande, that proves the value of outsiders' ideas…

… When the Cerro Grande Fire swept down from the mountains this spring, these extra defensive steps, taken in response to the public comments, paid for themselves many times over. The savings were in the form of the harm to facilities that was reduced or avoided and reduced risk to the public that might have resulted."

LANL Office of Community Relations, September 2000, https://hwbdocuments.env.nm.gov/Los Alamos National Labs/General/13435.pdf

Growing Momentum for a LANL SWEIS

- The City of Santa Fe has passed a resolution calling for a new LANL SWEIS.
  https://nukewatch.org/newsite/wp-content/uploads/2021/02/Santa-Fe-City-LANL-SWEIS-Resolution-2021.pdf

- The County of Santa Fe has passed a resolution calling for a new LANL SWEIS.

https://www.santafecountynm.gov/documents/ordinances/Resolution_2021-011-p0001_-_p0005.pdf

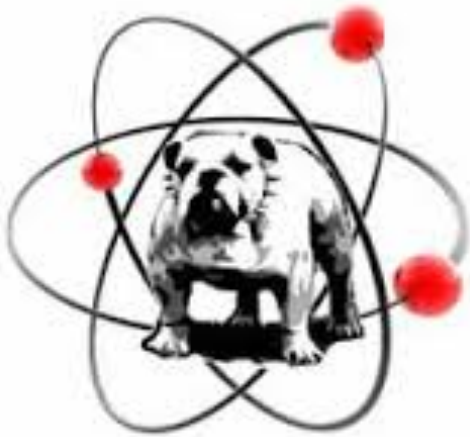
Conclusion: What You Can Do

- Tell NMED to negotiate a new Consent Order governing cleanup at LANL.

(Note NMED virtual community meeting at 5:30 Thursday 2/25)

- Pressure the New Mexico congressional delegation to support a new LANL Site-Wide Environmental Impact Statement.
- It would be wonderful if the Parajito Group could adopt positions on the Consent Order and SWEIS.
- Stay tuned for suggested actions on these issues.

Contact us at www.nukewatch.org



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