Jornada del Muerto or Camino Real:
Nuclear Weapons and the Future of New Mexico

We have had the bomb on our minds since 1945. It was first our weaponry and then our diplomacy, and now it’s our economy. How can we suppose that something so monstrously powerful would not, after years, compose our identity?

E.L. Doctorow

Only he who knows the empire of might and knows how not to respect it is capable of love and justice.

Simone Weil

Talk for the Intergovernmental Council of the Enchanted Circle

Los Alamos Study Group • www.lasg.org • 505-265-1200

Greg Mello
June 14, 2006
After a small post-WWII rise, New Mexico’s relative fortunes rapidly fell to almost last place among the states, even as nuclear weapons spending rose dramatically. Nuclear weapons have not brought economic development. If there is a connection between the two – and I think there is – it is a negative one.

Sources: Bureau of Economic Analysis; Schwartz, S. Atomic Audit (1998); Los Alamos National Laboratory; and Los Alamos Study Group.
Historical Los Alamos Site (Site Y, LASL, LANL) Spending, 1943-2002, with Relative Per Capita Personal Income in Two Neighboring Counties

(2002 dollars in millions. FY02 spending $2,064 M)

LANL spending goes up and adjacent county relative income stays flat.

National average per capita personal income -- 100%

Average Cold War spending (1946-1989): $0.63 billion/year

Manhattan project average spending: $0.32 B/year

(1946-1953 data not yet available)

Total LANL spending, 1943-2002: about $47 billion in 2002 $

Average post-Cold War LANL spending: $1.48 billion/year

Year

Rio Arriba County
Santa Fe County
LANL Spending
From 2001 on, LANL spending data is not reliable due to secrecy regarding “work for others” (WFO) and $200 M in unspent funds still retained as of FY04, which are assumed here to spent out evenly and completely over the years FY04 to FY07, $50 M per year. WFO is assumed to remain at the FY04 level of $350 M for FY05 and then decline to $300 M in FY06 and FY07 and to decline further to $250 M in FY08 for reasons of fiscal scarcity.

LANL’s spending could decline soon. The red dot shows an estimate of 2007 program spending after new profit, new taxes, and new contract costs, assuming no new money is found.

1948-1991 average: $4.76 B in FY06$

Real growth: 5.9%/yr ’95-'05

Real decline: ~4.9%/yr ’05-'07

(Includes pro-rata share of NNSA administrative costs, 1997-2007.)
Los Alamos National Laboratory and Site Office
FY 2004 Funding in Millions (All Sources):
$2,229 M (includes $200 M unspent prior funding)

- Nuclear Weapons (73%)
- Nuclear Nonproliferation (7%)
- Science (6%)
- Other Defense Activities (4%)
- Cleanup Investigations (4%; includes other sites)
- Homeland Security & Related (3%)
- Energy (3%)

Many non-weapons programs also contain weapons work.

LANL is a weapons lab and not much more. This focus will increase.
Military spending is localized; military taxation is everywhere.

Most NM counties LOSE in the military “pork game.”

(This DRAFT analysis and map does not include the effects of commuting.)
New Mexico’s Economic & Social Health: Existing Policies Are Failing

Please refer to GREEN handout

These social, health, and educational realities insure that most companies will locate elsewhere, perhaps except for those wanting to exploit cheap labor or pollute the environment. This is called “pollution shopping.”

Making plutonium “pits” for nuclear weapons pollutes the environment and produces hazards both chronic and acute. This is a major reason northern New Mexico is being selected for the job. NNSA believes political weakness will make New Mexicans accept what others with more wealth and income will not accept.
U.S. military spending approaches $900 billion, $7,600 per household

Please refer to yellow handout

Military spending now consumes 58% of all U.S. discretionary spending and 44% of total federal outlays for all purposes. Bilmes and Stiglitz (Nobel Laureate, economics) estimate the Iraq War will cost $1-2 trillion. The federal debt, increasingly held in foreign hands, is much larger than ever before. These spending priorities take about the half the taxes from rural counties and give the money to the military and its contractors, producing little or nothing that people need and bleeding funds from where they are needed.
Competition – or Cartel?
Privatization and Crony Capitalism in the Nuclear Weapons Complex

Please refer to BLUE handout

Just 9 companies spend half of DOE’s budget; the nuclear weapons business of NNSA is 96% privatized. Four of these companies now run LANL. They are there to make sure LANL quits fooling around and starts making new weapons and the “pits” NNSA wants. For this they get a $37 billion, 20-year no-bid contract, probably along with promises of other (more lucrative, less public) work elsewhere. Federal oversight of all kinds, such as safety, is diminishing fast; the big contractors are now supposed to monitor and grade themselves with minimal oversight.
Unfolding tragedy trivialized: Is this our future? (from lanl.gov)
Context: Nuclear weapon stockpiles

- **Weaponized stockpiles** (2004 data): 9 countries, ~25,000 to ~32,000 weapons

  - 5 countries in NPT (“P5”): ~28,000 ± ~3,000 weapons (99%)
  - 4 countries not in NPT: ~270 ± ~80 weapons (1% of total)
  - **Weapons** vary much more greatly in capability than **devices**.

- **Latent capabilities** (a few dozen countries, some more than others; Iran is in this group and is about 10 years from a nuclear weapon):

  - *Many* countries own or control more than ~4 kg Pu (reactor-grade or weapons-grade; minimum needed ~ 1 kg) or ~20 kg HEU. Neptunium also works.
  - *Many* other countries could produce these materials if they chose.

**Moral #1:** You can’t preach temperance from a bar stool.
How fast, how far, what new capabilities?
Largely depends upon U.S. actions

Heading down to 6,000, supposedly. Major new capabilities are underway, however, especially in accuracy, delivery systems, command and control, integration, fuzing, yield flexibility, & likely earth-penetration.

Sources: NRDC, FAS, GlobalSecurity.org, others
New information says China has only half the nukes previously thought.

New capabilities in UK, now & soon? Major debate going on.

The advanced Israeli arsenal, supported by US. policy, is the bane of nonproliferation in the region.

India and Pakistan are gradually advancing in weapons and delivery systems; U.S. will enable Indian nuclear weapons if Senate ratifies terrible treaty.

Sources: NRDC, FAS, GlobalSecurity.org, others
### Projected U.S. Nuclear Stockpile, 2012 (NRDC)

<table>
<thead>
<tr>
<th>Warhead</th>
<th>Type</th>
<th>Number</th>
<th>Yield (kt)</th>
<th>Total Yield (kt)</th>
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<td>W78</td>
<td>ICBM</td>
<td>400</td>
<td>335</td>
<td>134,000</td>
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<td>545</td>
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<td>CM</td>
<td>265</td>
<td>150</td>
<td>39,750</td>
</tr>
</tbody>
</table>

**Total**  
5,945  
1,846,350

The (classified) stockpile plan is not locked in by treaty or and includes major qualitative “upgrades.” Total yield ~ 615 World War II’s @ ~ 3 MT.
B61-11 earth-penetrating bomb being loaded in B-2. Fifty of these bombs were produced without congressional debate.
One D5 missile with 8 x 475 KT W88 warheads comprises 3.8 MT of explosives – more than the 3 MT used in WWII. There are 24 missiles on an Ohio-class submarine; most warheads are 100 KT W76s. Accuracy upgrades to about 5 meters are reportedly available soon – enabling new “missions” for conventional warheads (and lower-yield nuclear ones).
Idealized nuclear weapon cross section, early 1960s. The “pit” is the concentric set of shells inside the high explosive at the top. Together these are called the “primary” (nuclear explosive).

Some modern “pits” may be ellipsoidal and have just two detonators, one at each of the poles. This enables smaller diameter primaries.
Nuclear weapons pit mockup, Israeli, early 1980s (Mordechai Vanunu)
Israeli pit mockup showing hole for boost gas tube (to be welded on later) (Vanunu)
It is illegal to maintain nuclear weapons indefinitely.

“Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and of a treaty on general and complete disarmament under strict and effective international control.”

– Article VI, Nuclear Nonproliferation Treaty (NPT), ratified by the United States and entered into force in 1970.

“There exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control.”

– Unanimous judgment of the International Court of Justice, 1996, “Legality of the Threat or Use of Nuclear Weapons.”

“The Conference agrees on...[a]n unequivocal undertaking by the nuclear weapon States to accomplish the total elimination of their nuclear arsenals leading to nuclear disarmament, to which all States parties are committed under article VI.”

– from the consensus agreement of NPT signatories at the 2000 NPT Review Conference, including the U.S., Russia, China, France, and the U.K.
U.S. domestic nuclear weapons complex, main sites

yellow = DoD deployments
white = NNSA labs & plants
red = NNSA management

LANL main technical area (TA-3), looking SSW, old photo
LANL TA-3 Sigma Complex (non-Pu pit parts and pit assembly)
Dual-Axis Radiographic Hydrotest (DARHT) Facility, LANL, circa 1999 (pit certification)
“Appaloosa”/“Dynex” vessels at LANL TA-60 – for pit explosive “subcritical” testing above ground using real Pu-239 or -242. These are single-axis vessels.
LANL TA-54, Area G
Nuclear & Chemical Waste Disposal
LANL Area G pit, from National Geographic
Area G pit, November 2004, looking west
Looking west. Area G (off lower R); expansion area R; Area L; Pajarito Canyon with former public road and numerous springs.
Nuclear waste drums in Idaho, similar to LANL
LANL waste pits can be very wet; carbon steel drums (where present) are very transient in any case.
There are over 1,000 contaminated sites at LANL, and about two dozen nuclear and chemical waste disposal sites.
There are about 13,000 surplus pits stored at the Pantex plant near Amarillo (Zone 4, mid-2000)
Zone 12, Pantex, where nuclear weapons are assembled
Sandia National Laboratories (SNL), New Mexico’s other nuclear weapons design and production facility.
Now let’s go back to Los Alamos, New Mexico, in 1943...
Secret condemnation plan for what is now LANL real property
During WW II, plutonium processing and manufacture took place in Building “D,” where the Quality Inn is today.
Trinity explosion, made with plutonium pit
DP Site ("D Prime"), TA-21, which replaced D Building. The Rocky Flats before Rocky Flats.
DP Site (TA-21); plutonium manufacturing in foreground
Humble (?) beginnings of what is now the wealthiest county in the U.S.
LANL TA-21, DP Site; Uranium & Plutonium Processing & Manufacturing, (1999 photo)
LANL TA-55, plutonium facility, looking SSE: main building (PF-4) and ancillary structures; never-used Nuclear Materials Storage Facility to SW of PF-4; CMRR site S of PF-4. Green field to E is Area C nuclear/chemical disposal site.
May it rust in peace. A project management fiasco stopped by Study Group activists and bad design.
Staged Facility Investment Strategy to Support Pit Production

Facility Costs ($ Millions)

3,000

WHERE? & WILL IT HAPPEN?

DOE plan of March 2000, courtesy DOE AL

New Manufacturing Facility for Large Scale Production & Stockpile Replacement

Major LANL Facility Modifications or Replacements to Support Increased Production

LANL Facility Modifications to Support Sustained Production & Near Term Stockpile Requirements

Minimum LANL Equipment & Upgrades to Produce First WR Pit

1995

2000

2005

2010

2015

2020

PEIS

ROD

Certifiable pit

WR Pit

Pit Life Determination
Could We Define a “Southwest Nuclear Complex” – Leader in Weapons of Mass Destruction Worldwide?

• **NNSA sites**

LANL, SNL, and the NNSA Service Center account for half of all NNSA nuclear weapons spending. With Pantex it more than half, and these sites potentially contain between them (and WIPP) most essential NNSA functions.

• **DOE site**: WIPP

• **DoD sites:**
  
  • Kirtland AFB: storage of ~ 2,500 “reserve” nuclear weapons, ~ ¼ of total current arsenal and more than anywhere else in the world; USAF Phillips Laboratory and SpaceCom facilities, AF Nuclear Weapons Center, more.

  • Dyess AFB, (near Abilene,TX): ~ 350 deployed nuclear weapons

  • Cannon AFB, Holloman AFB, White Sands MR, Fort Bliss, etc.

• **Low-level and mixed waste disposal sites, existing and proposed** (LANL, Andrews Co., TX, Eddy Co., NM, others; projected waste streams for these sites are large, varied, and trying to expand)

• **Civilian nuclear facilities, proposed** (National Enrichment Facility, High Temperature Gas Reactor (Andrews Co., TX), reprocessing facility, others?)
A Southwest Nuclear/WMD Complex? (continued)

• Unwavering core political support so far
  • TX a “red” state with a strongly-supportive political environment
  • NM a passive client state or internal colony, with weak institutions, low political expectations, and an increasingly-captive economy

• Potential strong growth in nuclear and allied technologies
  • Nuclear power may experience strong resurgence, with strong front-end (fuel) and back-end (waste) demand, plus design efforts and political services; decommissioning wastes and novel fuel cycles (President Bush’s GNEP) will involve large quantities of wastes, focusing attention on arid SW
  • Desalinization “R&D” may lead to calls for brine or air-cooled nuclear power generation
  • Potential new uses for radioisotopes (space war, nanotechnology)

• Declining resources of water and hydrocarbons, increasing political vulnerability in the absence of alternative economic and social paradigms

We have to firmly reject nuclear weapons if we do not want them to define and limit our choices in the New Mexico/West Texas region.