



Los Alamos Study Group

Nuclear Disarmament • Environmental Protection • Social Justice • Economic Sustainability

**[I would change a few (not many) of the suggestions below, were this letter written today.
Greg Mello, August 11, 2008]**

May 14, 2008 by fax and email with hyperlinks

**Re: Part 2 of Suggestions for National Nuclear Security Administration (NNSA)
Weapons Activities (WA) in the Energy and Water Development Appropriations
Bill for Fiscal Year (FY) 2009**

Dear –

Thank you for the opportunity to comment on this proposed legislation. This letter is Part 2 of those comments. Part 3 will follow tomorrow.

I can answer your questions about these matters at any time. I will be arriving in Washington on Sunday and will be available through most of Friday afternoon.

This letter picks up where yesterday's (Part 1) left off. Again it is terrible conclusory in many important respects and therefore not as useful for you as I would like.

This letter picks up where yesterday's left off. Its scope includes some, but by no means all, of the specific suggestions we offer for NNSA WA appropriations. More will follow tomorrow in Part 3.

Specific appropriations suggestions

1a. Chemistry and Metallurgy Research Replacement (CMRR) (Project 04-D-125, previously 03-D-103) (in Readiness in Technical Base and Facilities, RTBF)

\$100.2 M is requested. We recommend appropriating only \$15 M, cutting \$85.2 M from the request.

The Senate Armed Services Committee has reported out an authorized amount for this project of \$50.2 M, the 50% cut being largely due to "concerns about the design of the facility." (*Nuclear Weapons and Material Monitor*, 5/5/08). Oral reports suggest the House Armed Services has authorized the full requested amount.

Updated background

Considerable background on this project is available at www.lasg.org and from our files. Some recent project information follows.

Based on a 5/12/08 conversation with project management staff, the FY08 appropriation of \$74.5 M is being applied to:

- RLUOB construction: very roughly \$20 M, which fully funds the RLUOB construction account and is expected to be adequate to finish constructing the building;
- RLUOB special facility equipment (SFE, under so-called CMRR "Phase B;" some of this work is "dual-use," i.e. also applicable to NF SFE design): very roughly \$18 M; and
- NF design: very roughly \$36 M.

These allocation estimates come with multi-million dollar error bars and are my own interpretation.

Again according to project staff, RLUOB construction is now approximately 45% complete. Initial beneficial occupancy is currently scheduled for the first quarter (1Q) of FY2009.

RLUOB SFE design, procurement, and installation are “not expected to be cheap.” These cost estimates are apparently sensitive to the chosen level of contingency risk, no doubt an issue with these unusual, perhaps one-of-a-kind SFE procurements. RLUOB SFE cost is expected to be baselined in circa July of this year.

NNSA expects to be adding SFE to the RLUOB over a nominal three-fiscal-year period (FY2009 through at least some of FY2011). There will be phased occupancy, with some staff working there in offices in FY2009 but with full laboratory outfitting complete only in 2011.

The completed RLUOB is expected to contain offices for 350 people. Presumably nearly all of these expected occupants are to be a) future net hires, and b) associated with pit production and certification. To repeat what we have said elsewhere repeatedly, the RLUOB has no *raison d’etre* without assuming a massive expansion of pit production capacity at LANL. That expansion, in turn, has no *raison d’etre* without the Reliable Replacement Warhead (RRW) or an equivalent new-pit production mandate. There is, I will assert, an obviously adequate number – or, in all cases save the W88, an obvious *surfeit* – of *all* existing kinds of pits. The lack of need for pit production is discussed briefly below and in other Study Group analyses.

Preliminary design (PD) of the NF is now advanced. Closure on a number of issues that have bedeviled the project – space does not allow further details here – has reportedly been achieved. Time may tell. PD is expected to be nearly complete in the current FY (2008), and fully complete in the 1Q of FY2009, when NF final design is expected to begin. PD cannot be completed until the Record of Decision (ROD) of the Complex Transformation Supplemental Environmental Impact Statement (CTSPEIS) is filed; that public announcement will solidify the proposed size of the building, which is not yet known to the project team. That ROD is expected this fall.

The CMRR project team is currently assuming the NF will contain 22,500 square feet of Category I/II nuclear facility space, but this, reportedly, could expand to as much as 32,500 sq. ft. if the CTSPEIS ROD so announces (the CTSPEIS mentions a maximum of 31,500, so this is likely the actual legal limit in this process). The CMRR NF has been designed in a modular fashion (“like a hotel”), to facilitate ready expansion of this kind within physical site constraints. The immediate NF site constrains designers to a maximum of 32,500 Category I/II sq. ft. for this particular building.

Tellingly, while designers are currently assuming the 22,500 sq. ft. figure applies, there is not expected to be any delay in the conclusion of NF PD even if there is a last minute 40% increase in nuclear facility space.

As the Draft CTSPEIS notes, the TA-55 site at LANL can accommodate an *additional* (RLUOB + NF) comparable to those being designed today in the event higher pit production capacity were needed, which would raise the total *new* Category I/II square footage to somewhere between 45,000 or even 65,000 sq. ft., all *in addition to* the current PF-4 Category I/II space of 59,600 sq. ft.

It is possible that the TA-55 Reinvestment Project (TRP) could add to these totals. The scope and budget of that project have not been publicly described. So the currently-foreseen (and “NEPA-possible” prior to downselection in the ROD) Category I/II plutonium-oriented nuclear facility space at LANL’s TA-55 could be anywhere between 82,100 and 124,600 sq. ft., *plus* any that might be added later in the TRP or in other ways associated with subsequent NEPA processes.

These totals obviously do not include non- Category I/II space in the new buildings, which is expected to be at least 400,000 minus 22,500, or at least 377,500 sq. ft. Neither do they include the nuclear facility space in the proposed Pit Radiography Facility, nor all the ancillary and supporting nuclear and radiological space, e.g. in the Radioactive Liquid Waste Treatment Facility (RLWTF) and in solid radioactive waste facilities at TA-54.

Together, all these facilities, especially given the modular approach NNSA is adopting to new pit-production-related facilities, comprise a pit production complex that is relatively open-ended in terms of capacity and cost. I am not sure that Congress understands fully what it may be buying – what sunk costs in one facility lead to in another.

The pit production capacity per square foot is not a fixed number but varies markedly with pit type and the production technology used, among other factors. RRW or RRW-like pits would allow dramatic increases in production rates for a given facility.

NF final design is expected to take about 1.5 years, i.e. is expected to be complete in the latter half of FY2010. Early site work is expected to begin in the 2010 timeframe (after RLUOB construction is complete and the building contractors have demobilized from their current construction yard, which is located at the NF site). Actual NF construction is expected to begin in 2011.

It is not expected that there will be a firm budget for the NF even by next year’s (the FY2010) congressional budget request in February of 2009, since final design will not be complete at that time. As might be expected, it is proving challenging for the construction estimating team to get a firm handle on escalating costs over the coming decade.

We here at the Study Group expect the coming decade to be very tumultuous as regards many things, including CMRR costs and political support. We believe this project has relatively large management risk and competes with more legitimate NNSA – indeed, Department of Energy (DOE), and Energy and Water Development – objectives and programs in a time of increasing fiscal austerity.

It should be noted (again) that the funding mechanism for the CMRR project seems crafted to obscure accountability. Congress should have demanded in the beginning that the CMRR project be split into two separate projects. It *is* two separate projects. Lumping the SFE costs together, which are still unknown even for the RLUOB, has kept Congress from attributing these costs for years even as the RLUOB nears the half-way point of construction. In effect, “Phase B” serves as a “pass-through” mechanism whereby project funds can be moved *sub rosa* from the RLUOB to the NF and vice-versa as needed.

Detailed recommendation

1. We assume RLUOB construction cannot be stopped. No further appropriations are necessary for this purpose in any case. None have been requested for FY2009. The RLUOB will thus

be built with offices for 350 new people, the purposes of whose jobs are unknown – and unapproved by Congress.

2. The final cost of the RLUOB SFE is unknown and, without an expanding pit production mission to justify it, so are its purposes. We recommend appropriating \$15 M for CMRR SFE pending further explication of its precise purposes and need. It is possible the RLUOB could be partially re-purposed to some extent, which suggests going slow on procurement of special equipment. The effect of nuclear posture and policy decisions on the SFE needed is not clear to me.
3. The NF should be stopped at the end of FY2008, nearly at the end of the PD process. We recommend appropriating zero funds for the NF project for FY2009. At the very most, \$10 M could be provided to wrap up NF PD in the 1Q of FY2009 but this would likely be misused and should in view be a deep backup position. The CMRR NF PD can and should be “captured” and put on the shelf with little further ado at the end of FY2008. The facility is not needed and this should be said if at all possible. It will not be very harmful, if second-best, to say the CMRR is “premature” if clarity on the lack of a defensible pit production mission is not achieved this year.
4. Upon information and belief, NNSA has a variety of budget lines from which to pull funds to complete the NF PD, or for that matter the RLUOB SFE in an emergency, as well as to take care of any other minor and medium-sized infrastructure gaps. The point is, small unfinished “tails” of ill-considered projects should not be used to perpetuate congressional project funding streams. Unless explicitly barred, NNSA and its deep-pocket site contractors can tidy up the last little bits of failed and discontinued projects if it is truly of transcendent institutional importance to them to do so and appropriations are not forthcoming. Laboratory-directed funds, for example, may be available to preserve nuclear facility design work.

NNSA should be forced to “eat” at least some of the losses resulting from its repeated recent failures in policy and infrastructure planning, exemplified by NNSA’s aggressive approaches to pit production (the Modern Pit Facility, the Consolidated Plutonium Center, and CMRR NF, hopefully), the procurement of new weapons (the Robust Nuclear Earth Penetrator, RNEP, and RRW, hopefully), and complex transformation (“Complex 2030”). If Congress fails to hold NNSA accountable for these mistakes, Congress is just asking for more of the same.

5. Congress should request independent analyses of current missions, status, and capabilities of LANL a) nuclear and b) radiological facilities.

These recommendations dovetail with those regarding pit production as well as with the following three facilities recommendations.

1b. Nuclear Materials Safeguards and Security Upgrades Project (NMSSUP) (Projects 05-D-170-01 & 08-D-701)

\$46.0 M is requested. We recommend appropriating zero, cutting \$46.0 M from the request.

This project is inseparable from the CMRR NF. It should be cancelled. Any necessary security upgrades to the existing Perimeter Intrusion Detection and Assessment System (PIDAS)

alignment could be undertaken using general plant funds (GPP) and Capital Equipment lines in operating funds.

This quarter-billion-dollar fence project would dramatically change TA-55 PIDAS alignment twice, once before and once after CMRR NF construction.

If for some reason independent of CMRR it became necessary to realign the TA-55 PIDAS, this project could be re-scoped and resubmitted.

1c. TA-55 Reinvestment Project (TRP) (Projects 06-D-140-02, 08-D-804, “10-D-XXX,” & a later one)

\$17.0 M is requested. We recommend appropriating zero, cutting \$17.0 M from the request.

Retract and re-scope this project as necessary. The project documentation provided to Congress is insufficient, as it lacks total scope, total cost, and duration. Readiness in Technical Base and Facilities (RTBF) operating funds are available for necessary safety maintenance and upgrades. NNSA should not upgrade pit production capacity in the absence of a national nuclear weapons policy and nuclear weapons posture that require it.

1d. Pit Radiography Facility (PRF) (Project 06-D-140-01 and a yet-to-be named later one)

Zero is requested. We recommend appropriating zero and canceling the project.

This project is currently deferred, pending completion of CTSPEIS and RRW decisions. Pit radiography capability already exists in PF-4; upon information and belief the primary *raison d’etre* of this project is to increase pit production capacity and flexibility by moving this function out of PF-4. Again this implies a nuclear weapons production decision that has not to my knowledge been made.

2. Pit Manufacturing and Pit Manufacturing Capability (Directed Stockpile Work)

\$198.9 M is requested. We recommend appropriating roughly \$100 M, cutting \$98.9 M (half) from the request, a comparable percentage to what the House chose last year.

The Senate Armed Services Committee authorized \$178.9 M for this program (a 10% cut). The House Armed Services Committee authorized \$148.9 M (a 25% cut).

Pit production can and should be safely placed on “warm standby.” It would be reasonable to aim for a stable capacity of 10 pits/year without any actual production, for reasons adduced in previous correspondence and reports from this organization, some of which can be found at www.lasg.org; see for example http://www.lasg.org/PU_talking_points1.htm.

Much of the requested appropriation, the detailed nature of which is not easily known and may be reprogrammable in any case, can be associated with expansion of pit production capacity.

Last year, \$281.2 M was requested for Pit Manufacturing and Certification, consisting of \$46.0 M for pit certification and \$24.9 M for the Consolidated Plutonium Center (CPC), leaving a request of \$210.3 M for pit production proper, not greatly different than this year’s \$198.9 M.

The House voted by a wide margin for an Energy and Water Development Appropriations bill containing \$150.0 M (53% of the request, i.e. a 47% cut) in the combined pit production and certification line.

The reasons given for this proposed deep cut were:

- NNSA had funding requests in multiple lines for plutonium work that assume particular future policies.
- Ad-hoc planning and management at TA-55 ensures waste and lack of accountability.
- NNSA plutonium facilities planning assumed a modernization-in-place strategy for the weapons complex. Neither that nor anything else about the future stockpile had been decided.
- The CPC was likewise premature.

Last year, NNSA assumed an early ramp-up of RRW pit production at LANL in its request. While pit production expansion is still assumed in this year's request, no such assumption actually applies – in fact there is no reason to make pits for the stockpile at all. Fewer funds are needed than the House would have appropriated last year, i.e. less than \$150 M minus the \$30.0 M the House passed for W88 pit certification – less than \$120 M, in other words.

First priority must be given, not to production, but to steadily working through the backlog of unresolved safety and environmental issues at LANL associated with plutonium and associated waste (solid and liquid) handling.

Time prevents me from inserting a richer explication of the reasons pit production is not necessary. Some of the reasons were adduced in Part 1 of this letter. The overall weight of argument is, I believe, quite compelling but must wait until I am in Washington.

3. Reliable Replacement Warhead (RRW) (Directed Stockpile Work)

\$10.0 M is requested. We recommend appropriating zero, cutting \$10.0 M from the request.

The RRW provides only negative value to the NNSA nuclear weapons program and the nation. It can never meet mandatory congressional objectives, for reasons I will be happy to explain at length (and which are summarized at http://www.lasg.org/RRW_talking_point_summary.pdf).

5. Science Campaign

\$323.1 M is requested. We recommend appropriating approximately \$197.5.3 M, cutting \$125.6 M (39%) from the request.

NNSA's request represents 12% growth (\$35.4 M) in its Science Campaign. For FY2009 this budget line picked up \$42.7 from programs previously in Pit Certification, which accounts for all its proposed growth and then some.

I regret not being able to enter into some of the following issues in greater depth at this time. A related much-previous sketch, drawing on a detailed analysis made the time, can be seen in *Issues in Science and Technology* at <http://issues.org/15.3/mello.htm>. Many of the issues below

were, in earlier incarnations, the subject of numerous articles by my friends and me a decade and a half ago.

As discussed in Part 1 of this letter, some of the goals of the Science campaign are inappropriate because they are oriented toward certification of novel nuclear explosive packages (NEPs) without nuclear testing, rather than stockpile maintenance, a much simpler and less science-oriented task. Some of the program goals presented are unrealistic; some are based on false premises; some appear to derive value only in relation to other equally-unrealistic goals. It seems there is an attitude that if it is science, it is good, i.e. worth funding. At their present scale NNSA Science Campaigns can rightly be labeled an entitlement program (“welfare for PhDs”). Many are tautologically justified and create subsequent demand for more of the same sort of investigation (they are, in other words, “self-licking ice cream cones”). Inherently, they can have no closure; quite the contrary in fact.

The purposes of the Science Campaign should converge simply and decisively on maintaining existing warheads indefinitely while nuclear policy is decided in other forums (a variation on what Norris Bradbury told incoming LANL employees for more than two decades). The present programs are much more, and at the same time much less, than this.

For those who wish to retain a nuclear arsenal, there is no alternative because the U.S. is not going to conduct a nuclear test.

I recommend cutting NNSA Science Campaigns decisively – significantly more heavily than WA activities overall. The suggested 39% cut is approximate. Infliction of this much “harm” on the program would have dramatic effects but would make life much easier next year.

It might be divided as follows:

a. Advanced Certification: \$20.0 M requested; cut approximately \$20.0 M (all).

This program addresses questions that are in general profoundly wrongly posed, a subject much too detailed for this note. Much of the supporting language provided to justify this program is just false.

Advanced Certification, as described, has a great deal more to do with new weapons systems than existing ones – and with undermining perceptions of confidence in the stockpile for political ends.

What is “advanced” about “advanced certification” is what is wrong with it. The entire science campaign is or should be about certification and little else, and it should be just as advanced as is appropriate to the task at hand, not more and not less.

b. Primary Assessment Technologies: \$74.4 M requested; cut approximately \$18.6 M (25%)

The workload in this program wilts without potential new primaries in the pipeline.

c. Dynamic Plutonium Experiments: \$23.7 M requested; cut approximately \$5.9 M (25%)

We know a great deal more than we did when this program began more than a decade ago. Less is needed.

- d. Dynamic Materials Properties:** \$85.8 M requested; cut approximately \$21.5 M (25%)

Same as c.

- e. Advanced Radiography:** \$29.4 M requested; cut \$29.4 M (all)

This program is mostly if not entirely oriented to advancing diagnostic tools, the primary purpose of which is the quest for the capability to certify new NEPs without conducting a nuclear test.

It is very important to send a clear signal as to which way NNSA science is heading. Zeroing out this bellwether program would do that.

Hundreds of millions of dollars have been spent under the aegis of “advanced radiography” since 1995, while the *actual* fancy new radiography machine – the Dual Axis Radiographic Hydrotest (DARHT) facility at LANL – has been very far over cost and schedule.

Not even DARHT was needed to certify the arsenal, as the 12-year record shows. How much less necessary are “advanced” DARHT successors, which at last ken were expected to cost well over \$1 billion, perhaps close to \$2 billion in today’s market. Such machines are as unaffordable as they are unnecessary and it is safe to say they will never be built. NNSA should not fund fantasies.

- f. Secondary Assessment Technologies:** \$79.3 M requested; cut approximately \$19.8 M (25%)

This program appears to be one of the least-justified in this budget line from almost any perspective except that of subsidizing inertial confinement fusion for weapons purposes – which is kind of like a pimple on a wart.

- g. Test Readiness:** \$10.4 M requested; cut \$10.4 M (all).

The U.S. is not going to conduct nuclear tests. This cut will be contested but it is a fight that should be joined, a fight we need to have.

I suspect these funds are too small to actually accomplish anything. The purpose of this token program is likely political for the most part, both domestically and internationally: to feint nuclear testing readiness in order to preserve negotiating power for appropriations across WA and also to reserve diplomatic bargaining chips in relation to international CTBT-related negotiations.

6. Engineering Campaign

\$142.7 M is requested. We recommend appropriating approximately \$122.0 M, cutting \$20.7 M (15%) from the request.

Overall, these programs are in general better justified than those in the Science Campaigns, as the concreteness of their descriptions should make clear. Stockpile maintenance is far more an engineering activity than it is a science activity. There are far more non-nuclear than nuclear components in weapons.

This is not a blanket endorsement, as noted.

- a. Enhanced Surety:** \$35.6 M requested; cut approximately \$17.6 M (half).

I understand that the quest for enhanced surety is popular. I believe the possible increment in actual overall *systems* surety that is achievable by further improvements (so-called) in *warhead* surety is small, perhaps vanishing small, as Mr. Peurifoy says (whose knowledge in these matters compares to mine as an ocean to a tea-cup).

In addition, this program centrally includes new warhead design. Assumptions of unending stockpile innovation need to be dampened and the direction of this program needs to be clarified.

b. Nuclear Survivability: \$17.1 M requested; cut approximately \$3.1 M (18%)

Work on possible future systems is not necessary, and the pace of work involving nuclear survivability on new components for existing warheads and bombs can likely be decreased.

5. Inertial Confinement Fusion Ignition and High Yield Campaign

\$421.2 M is requested; we recommend providing \$316 M, cutting \$105.2 M (25%) from the request.

I believe there is only modest value added to the nuclear weapons program by these programs. They have come to be little more than traditional annual entitlements reinforced by an international peer competition (as is also the case in supercomputing).

This steep cut reflects that lack of value and should be followed by a comparable cut for FY2010. The U.S. cannot afford to fund folly indefinitely and there are far cheaper ways to engage and train a limited number of physicists capable of evaluating the explosive properties of existing nuclear weapons secondaries and cases.

I hate to leave matters at such a simple level, which may offend any conscientious reader.

I will return to Part 3 tomorrow. Thank you for your attention.

Sincerely,

Greg Mello, Executive Director

cc: [others]