



Los Alamos Study Group

Nuclear Disarmament • Environmental Protection • Social Justice • Economic Sustainability

Memorandum

August 8, 2012, Revision 0

To: Interested Parties

From: Greg Mello, Los Alamos Study Group

Re: Comments on the “60-Day Study” from Los Alamos National Security (LANS), LLC, for warhead plutonium sustainment, given indefinite deferral of the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR-NF)¹

Highlights

- Los Alamos National Security (LANS) has produced a proposal, which is still effectively secret, for replacing the agency and contractor aspirations embodied in the CMRR-NF project. Some (but by no means all) of the major outlines of this proposal are now known. John Fleck of the *Albuquerque Journal* wrote a piece about the proposal this morning.²
- Other National Nuclear Security Administration (NNSA) sites were not involved in producing this plan, which can be seen from the text. We also know this from multiple reliable sources in government.
- In its plan, LANS proposes to make the CMRR Radiological Laboratory, Utility, and Office Building (RLUOB) into a Hazard Category III Nuclear Facility. LANS proposes that it be given \$186 million (M) to accomplish this. This is more than the \$167 M NNSA spent to build RLUOB.^{3,4} RLUOB would become a “NLUOB.”
- This proposal contradicts contemporaneous public statements as well as NNSA representations. It has not been analyzed under the National Environmental Policy Act (NEPA). It is not however a *federal* proposal at this time.
- The CMRR-NF project teams are being disbanded. If projections made in June have held true, the LANS CMRR-NF team is now at 40% of its March, 2012 staffing level.
- The LANS post-CMRR-NF plan will take a long time to implement – eight years, plus another three years to finally leave the Chemistry and Metallurgy Research (CMR) Building. LANS seeks \$765 M to implement the plan.

¹ Craig Leasure and Matthew Nuckols, “Los Alamos Initial Response for Maintaining Capabilities with Deferral of the CMRR Nuclear Facility Project, April 16, 2012, LA-CP-12-00470, Unclassified Controlled Nuclear Information(UCNI). I do not have a copy of this UCNI document and have urged congressional committees to request a redacted version from NNSA to facilitate wider discussion and review. This organization has also requested this document under the Freedom of Information Act (FOIA). FOIA requests for current NNSA documents are nearly always fruitless. Several government sources have referred to a Secret Restricted Data (SRD) version of this plan.

² John Fleck, “LANL Plan B Cost \$800M,” <http://www.abqjournal.com/main/2012/08/08/north/lanl-plan-b-cost-800m.html> (paywall). Mirrored at http://lasg.org/press/2012/ABQ_JRNL_north_8Aug2012.html

³ In addition to the building, RLUOB has required what will be a total of about \$205 M in “equipment installation,” which is slated for completion this fiscal year with a final annual installment of an estimated \$40 M.

⁴ We published historical expenditures for CMRR as well as the history of CMRR cost estimates today at http://www.lasg.org/CMRR/open_page.htm.

- A \$120 M tunnel is said to be needed to link the proposed “NLUOB” to PF-4. The relationship of this tunnel to the TA-55 security perimeter or to any future CMRR-NF and the excavation that would be needed for it is not clear.
- LANS estimates that it will cost \$330 M to rationalize its existing vault in Building PF-4. It is not clear how or where this money be spent.
- Other “laboratory” sites are said to be needed, other than LANL. Which? There are no answers as yet to this question – and many others.⁵ Only a few of the plan’s working assumptions are available, and there is no available discussion of sensitivity of the plan to changing circumstances and policies.
- The “flexible” plan is said to include “several means” of providing for pit production expansion capacity.
- Throughout the 12-year plan, no planning, design, or funding for CMRR-NF appears. NNSA’s announcements and testimony have stressed that CMRR-NF is not being cancelled, but rather merely deferred, for “at least five years,” during which time the project would be re-studied.

Background

On August 1, 2012, a little more information about the LANS proposal for plutonium sustainment without CMRR-NF became publicly available, in the form of two documents:

- LA-UR-12-21832, Ventura, Jonathan, “[Update LANS/LLNS Mission Committee](#)” (pdf) written for a June 4, 2012 conference call; and
- LA-UR-12-22260, Leasure, Craig, “[CMRR Background Briefing to Senate Foreign Relations Staff](#)” (pdf), given June 19, 2012.

Prior to this, CMRR-NF deferral had been announced, with just a few details of an alternate plan, in the FY2013 NNSA [Congressional Budget Request](#) (CBR, pdf, at p. 8) and the Office of Management and Budget (OMB), [Cuts, Consolidation, and Savings](#) (pdf, at p. 26). It was described a little further in a memo released with the budget request (“[Revised Plutonium Strategy – Supplemental Information for the President’s FY 2013 Budget Request](#), pdf).

Also on the same day as the budget request was released, (Feb 13, 2012) NNSA Deputy Administrator for Defense Programs Donald Cook produced a memo to Kevin Smith, Los Alamos Site Office (LASO) and Dr. Charles McMillan, Los Alamos National Laboratory (LANL), requesting a study of plutonium sustainment without CMRR-NF, to be provided within 60 days (“[FY2013 Budget Guidance on the CMRR-NF](#),” pdf).⁶

⁵ From John Fleck, op. cit., “A National Nuclear Security Administration official released a statement saying the agency is still studying the lab’s proposal and finalizing its response. “The revised plutonium strategy will utilize existing facilities at multiple sites,” spokesman Josh McConaha said in the statement. “It is likely, but not certain, that we will use Superblock at Lawrence Livermore National Laboratory, the Device Assembly Facility in Nevada, and the new Radiological Laboratory Utility Office Building at Los Alamos National Laboratory. However, nothing has been settled and we are working to finalize the details at this point.”

The decision to defer CMRR-NF was recorded in a March 27, 2012 Nuclear Weapons Council memorandum (“[Joint Department of Energy/National Nuclear Security Administration and Department of Defense Programmatic Realignments](#),” pdf).

Statements by Administration officials and their responses to members of Congress have added incrementally to the above information. We have gathered some (not all) of these in a letter to the chairs and ranking members of congressional committees (“[Concerns regarding CMRR-NF in the FY2013 National Defense Authorization Act \(NDAA\) as reported in the Senate](#),” pdf, July 16, 2012).

Comments follow. Two questions are of crucial and immediate import. What will happen to the approximately \$120 M in unspent balances that will remain in the CMRR project at the end of this fiscal year? And, what work will be authorized and appropriated in FY2013?

General Comments

1. The Ventura and Leasure briefings, and the other references cited above, do not by any means paint a complete picture of the LANS proposal, as will be apparent in other comments.
2. The official LANL, NNSA, and DOE Defense Programs documentary record concerning LANL plutonium capabilities and facilities, and which is used by all parties in framing their understanding of new information, is internally contradictory. As a result, no single document or statement can be taken as authoritative. To get a reasonably clear understanding judgment must be applied and probing questions asked. Sometimes, LANS and NNSA produce information that is just flat out wrong, as in some parts of Leasure briefing to congressional staff. Also, there simply is no way to know *a priori* answers to certain questions, such as, crucially, the pit production capacity of LANL’s main plutonium building, PF-4, at any time present or future. Neither LANS nor NNSA nor we know this number. “It depends,” on many things – including and especially management skill and clarity, morale, budgets, and true mission need just for starters.
3. The Ventura and Leasure briefings, and the 60-Day Study on which they are in part based are LANS corporate products – in other words, a blend of fact, interpretation, corporate strategy, and advocacy. The Ventura briefing was prepared for a corporate strategic context. These briefings literally address *Los Alamos* national security (hence the name, “LANS”), not just *national* security, and the two are different – very different, we believe.
4. These proposals are not, at this point, federal policy. We do not know what NNSA’s post-CMRR-NF proposal may be. A number of key NNSA and DoD nuclear planning documents have not been written and are unlikely to be prepared prior to the November elections.⁷
5. It is inappropriate for LANS, which has very strong conflicts of interest, to draft this plan. Also, LANS has played a major role, if not *the* major role, in the ongoing CMRR-NF debacle. We believe a thorough investigation is warranted, and the LANS M&O contract should be on the table, since hundreds of millions of dollars have been wasted.

⁷ To the list of unpublished documents in the Study Group Levin letter, *op. cit.*, the “Nuclear Posture Review Implementation Plan” should be added. The highly-interdependent NNSA planning process is backlogged.

6. There are two *independent* studies that bear on plutonium sustainment issues that should be mentioned as shedding light on the present situation, one old and public and one on-going not public, and highly influential:
 - a. The [Secretary of Energy Advisory Board Report of the Nuclear Weapons Complex Infrastructure Task Force: Recommendations for the Nuclear Weapons Complex of the Future](#), pdf, July 13, 2005;⁸ and
 - b. A DoD Cost Analysis and Program Evaluation (CAPE) team (scope unknown) (see Ventura slide 12 and also Wallace, slide 5.⁹

I believe it likely that the Senate testimony and colloquy of General James Cartwright (Ret.)¹⁰ was based on this second analysis, although I have not verified this.

⁸ In most relevant part: “The enormous investment made in the TA-55 facility has not yielded anywhere near the productivity levels this facility should be capable of attaining. The process is operated with little sense of urgency. It appears that each manufacturing step is “an event” attracting numerous witnesses and visitors. The process of actually building a pit seems to be a secondary mission of the facility, not the primary focus.

“At every phase of operation, there appears to be numerous opportunities to “lean-out” the operation. The current process follows 1950’s “inspect in” quality methodology. As such, the vast majority of the time the plutonium material, raw or in the process of becoming a pit, is waiting to be inspected, to be tested, waiting for test results, etc. This is an incredible waste of time. This is not to say that quality inspection does not have its place, it does. But given the many years of pit manufacturing experience, we should know how to make these components by well characterized processes which should not require the current amount of sequential testing which absolutely kills productivity. At a minimum, a rigorous review to determine necessary testing requirements would be valuable. In addition, current analytical metrology techniques, if applied, should yield superior results in much shorter time frames.

...

“From a modern industry standpoint, world class productivity, quality, and safety can all be attained at the TA-55 facility by thorough and rigorous analysis and hard work on the production floor. The cursory analysis of the TA-55 facility yields a ratio of value-added to non-value added work of perhaps 1:20 or much worse. This indicates a tremendous opportunity for improvement. The available productive capacity of this plant is being wasted by inefficient utilization of plant equipment and personnel.

“In conclusion, the TA-55 facility is an expensive national asset, which has the opportunity to be a dramatically more effective and efficient facility if operated as a modern production facility, utilizing available automation and world class operations management techniques.” Appendix H, SEAB, *Report of the Nuclear Weapons Complex Infrastructure Task Force: Recommendations for the Nuclear Weapons Complex of the Future*, July 13, 2005. <http://www.doeal.gov/SWEIS/DOEDocuments/049%20SEAB%202005.pdf>.

⁹ LU-UR-12-23317, Terry Wallace, “LANL Update for Regional Community Leaders’ Breakfast,” July 24, 2012. At http://www.lasg.org/budget/LANL_update_TerryWallace_Jul2012.pdf.

¹⁰ “Gen. James Cartwright, the former commander of U.S. Strategic Command and the vice chairman of the Joint Chiefs of Staff, reiterated this week that Los Alamos National Laboratory could add a second production shift to increase pit production to meet Pentagon requirements without building a new multi-billion-dollar plutonium facility. After Cartwright first made the suggestion at a Senate Energy and Water Appropriations Subcommittee hearing last week, Los Alamos weapons chief Bret Knapp said the lab had found that approach to be “inadequate” in a previous analysis due to lack of support for analytical chemistry work, which would be provided by CMRR-NF. “When we looked at this before really the issue was you didn’t have the floor space, or the floor space would be constrained and you might have to use an adjacent building for a while,” Cartwright told NW&M Monitor in a follow-up interview. “I absolutely agree with them. It’s not ideal. It’s not what you want to do for the longer term. But if today somebody walked in and said all of this capability in this one particular weapon is now found to be defective, we would find ways to make it work at a rate far greater than 20 to 30.”” Todd Jacobson, “Former STRATCOM Chief Stands by Comments on Pit Production Boost,” *Nuclear Weapons and Materials Monitor*, August 3, 2012.

There are certainly other internal, non-NNSA Executive Branch analyses of plutonium sustainment issues but I don't have them.

Also, it should be mentioned that LANL and LLNL have supported dividing the pit production mission between sites, and in 1996 found no reasons *not* to split the work.¹¹ NNSA and DOE currently expect to maintain and/or build plutonium nuclear facilities operations at six or more sites.¹² The “consolidation” of plutonium activities is largely a myth.

7. Almost certainly, and as these new documents as well as the budget request and related documents from February suggest, it will take some years to settle into a new strategy. Quite likely that new strategy will be *continually changing* in response to changing facts on the ground at the various sites, decisions about stockpile size and types of warheads, and especially the approach to be taken in Life Extension Programs (LEPs), e.g. whether pit production for the stockpile is going to be required and if so at what schedule and scale.
8. The LANS proposal is nearly silent about the role of other NNSA sites. There is no mention of any site for plutonium storage. Sources in government say that the LANS plan involves not just the Device Assembly Facility (DAF) at the Nevada National Security Site (NNSS) but also the Waste Isolation Pilot Plant (WIPP) as options.
9. Many members of Congress are thoroughly confused about these issues as the [Study Group letter to Levin, et. al.](#) (pdf) cited above, points out. For example, I count about a dozen errors in a July 26, 2012 letter from senators Bingaman and Udall to DoD Secretary Panetta regarding CMRR-NF. These same errors are discussed *inter alia* in the Study Group letter to Levin previously cited. Unfortunately, myths frequently repeated by powerful people have a way of seeming to be true until reality unravels them, as has happened in the case of CMRR-NF. How many more times will this occur with respect to NNSA's plutonium programs?
10. Regardless of what various actors may think about the merits of deferring CMRR-NF, deferral is increasingly becoming inevitable. Policy choices aside, deferral is being driven by CMRR-NF-specific problems, increasing NNSA project cost and scheduling problems, well-deserved declines in laboratory and NNSA credibility in the broader national security community, and military and government budget woes overall. To some extent deferral is also becoming a *fait accompli* as the project teams disband on the schedule revealed in these briefings.

Specific Comments

On the Ventura briefing:

Slide 13:

¹¹ UCRL-LR-125078, "Plutonium Pit Manufacturing Unit Process Separation Options for Rapid Reconstitution: A Joint Position Paper of Lawrence Livermore National Laboratory and Los Alamos National Laboratory, by Mark M. Hart, Lawrence Livermore National Laboratory, Warren T. Wood and J. David Olivas, Los Alamos National Laboratory, September 6, 1996. Study Group files.

¹² See also Los Alamos Study Group, [The Proposed Chemistry and Metallurgy Research Replacement Nuclear Facility \(CMRR-NF\): New Realities Call for New Thinking](#), pdf, Dec 10, 2010.

- “The CMRR-NF project will be suspended in a disciplined way.” This is not qualified or made contingent on anything else, either in this slide or anywhere else in these briefings. The Kyl et. al. and Bingaman-Udall letters of July, 2012 are, all content aside, too late.
- LANS will continue to pursue use of the RLUOB with Material at Risk (MAR) of greater than 26 grams (g) of weapons grade plutonium (WgPu) or equivalent. This means RLUOB would become a Hazard Category III Nuclear Facility (“NLUOB”?). The upper MAR limit in WgPu for a Haz Cat III Nuclear Facility is 1,733 g.¹³
- The flexible expansion of pit production capacity is a key point in the new strategy, as it has always been.

Slide 14:

- Ventura notes the close interrelationship between stockpile and LEP policies and plutonium sustainment requirements. Often pit and facility “requirements” as stated as if they were independent of future decisions. They aren’t.
- It is not clear for what proposal, or set of proposals, “offsite labs” euphemizes. This terminology is meant to obscure.

Slide 15:

- The schedule appears extremely dilatory. This will be more apparent in subsequent slides. I believe this is a result of:
 - A desire to stretch out the work in order to bring in more money (capital, operating) and to have fewer near-term deadlines, which is enabled by
 - A lack of any near-term need for either a) actual pit production or b) any certain increase in pit production capacity. It also
 - Provides time for implementing a significant latent capacity expansion, more than is shown in the nameplate capacity (30 pits per year, ppy), on a multi-site, short-term, and/or multi-shift basis.
 - The necessity to focus and put in place related infrastructure improvements in waste management (TRU Waste Facility, Radioactive Liquid Waste Facility [RLWF], massive new electrical capacity for the Los Alamos power pool, and other infrastructure additions, not here reviewed.¹⁴
- “Major risks”: all plutonium plans have major risks. CMRR-NF had so many “major risks” it has been “deferred” for now.
- This risk “analysis” is extremely superficial. If there were more careful risk analysis I believe we would see some evidence of it.

¹³ The applicable guidance is “Guidance On Using Release Fraction And Modern Dosimetric Information Consistently With DOE STD 1027-92, Hazard Categorization And Accident Analysis Techniques For Compliance With DOE Order 5480.23, Nuclear Safety Analysis Reports, Change Notice No. 1,” Nov. 28, 2011.

¹⁴ See [Los Alamos National Laboratory Twenty-Five Year Site Plan, FY2013 - FY2037](#), Jul 13, 2012 (pdf 1.6MB).

- From the language it appears LANS is interested in making sure NNSA takes the blame for any changes in requirements or cost.
- Most of the listed risks (including requirements change, cost/funding risk, analytical chemistry [AC] process development, staffing, “PF-4 Mitigation,” and programmatic interruptions) are common to *any* plutonium sustainment strategy, including CMRR-NF.
- “Inability to operate RLUOB at Haz Cat 3” is a listed risk to the LANS plan, but is mitigated by being related mostly to capacity, not capability.
- I believe the opacity and ambiguity of the language issues primarily from the desire for political strategic surprise. It is more than poor drafting.

Slide 24:

- Again, this is dilatory in every task. For example, I think “Integrated Nuclear Planning” (INP) is what NNSA asked for in the 60-Day Study, now in the rear-view mirror. LANS expects to conduct an additional 5-6 years of this activity at taxpayer expense.
- The LANS plan to continue working in CMR through 2023 is not safe.
- The 9 or so years proposed for vault cleanout begs many questions, e.g. cleanout to where? How could it take that long? Isn’t a rationalized vault needed sooner? Does this leave full resolution of PF-4 safety issues hanging fire, so to speak, for a long time?
- No tasks related to CMRR-NF appear throughout the 12-year timeframe, to 2024. This is at least an eleven-year, not a five-year, deferral. Also, if the project were deferred for a few years, but not cancelled, what would be the purpose of the 5-6 years of INP mentioned above? Wouldn’t the plan be more or less set, were CMRR-NF to finally be built?
- The shipments to “Superblock” may also refer to another building at LLNL, B332 (check). Periodic shipments to LLNL were apparently a part of the CMRR-NF proposal also, as CMRR-NF is and was being designed without the capability to do some of the work now done at LLNL.¹⁵

¹⁵“ NNSA officials indicated that they are confident that the CMRR will generally meet nuclear weapons activities needs and accommodate changes in the nuclear weapons stockpile requirements, including the ability to produce up to 80 pits per year. However, some weapons activities capabilities that currently exist at other NNSA sites may no longer be available to the nuclear security enterprise because of broader NNSA modernization plans to consolidate plutonium activities. As part of NNSA’s plan to consolidate plutonium related work at Los Alamos, the CMRR was designed to absorb some plutonium-related research from other facilities as those other facilities reduce or end their weapons activities work. For example, Livermore’s Superblock facility is equipped with the necessary systems to safely work with plutonium and to support extending the life of certain warheads in the nuclear weapons stockpile. Under NNSA’s strategy to consolidate plutonium work at Los Alamos, the majority of Livermore’s plutonium is scheduled to be removed in 2012, and some of this research will be discontinued at Superblock. NNSA plans to have the CMRR take on much of this work; however, Livermore officials told us they believe that NNSA may still lose some plutonium-related capabilities once some research is discontinued at Superblock. For example, NNSA may face a gap in the plutonium-related capabilities necessary to help improve nuclear warhead surety—that is, safety, security, and use control. NNSA has not planned for another facility to take over this work, and NNSA officials told us that the CMRR has not been designed to support this surety research. Furthermore, NNSA and Los Alamos officials told us that NNSA may also lose some pit testing capabilities that only take place in the Superblock at Livermore and are expected to be discontinued there in 2013. Pit testing includes thermal, vibration, and other environmental tests on pits that ensure that the weapon can successfully function from the time it is in the stockpile

Slide 25:

- Again we see the mysterious appearance of “outside labs.”

Slide 26:

- These are tremendous amounts of money for the tasks indicated.

On the Leasure briefing:

Slide 4:

- This again confirms that the Bolas Grande (“Big Balls”) project, aka the Confined Vessel Disposition (CVD) project, aims at recovering a “material” from these used vessels. This must be a material that simulates WgPu in hydrotests and which is scarce enough to justify such a campaign. That analog is Pu-242 (“Cider”), which was used in the “Appaloosa” program.¹⁶

Slide 6:

- Places all blame for CMRR-NF fiasco on NNSA.
- Erroneously refers to a current DoD pit production requirement of 50-80 ppy. There is not even such a current, active pit production *capacity* requirement.¹⁷

Slide 7:

- Erroneously states that the purpose and need for CMRR-NF have not changed since 2003. NNSA has stated otherwise.¹⁸

until it is deployed and reaches a target. Livermore officials told us that CMRR will not accommodate pit environmental testing because the systems used to conduct the environmental tests could cause vibrations through the rest of the facility. This could disrupt other work that requires precision instrumentation. Livermore officials also told us that these pit environmental testing capabilities are necessary to help meet nuclear weapons stockpile requirements. Because the CMRR was not intended to support all of these capabilities, NNSA will need to find another location if this plutonium-related work currently being conducted at Livermore is to be continued. NNSA has begun studying the extent to which the environmental pit testing capabilities will be needed, and if so, where they will be located. However, NNSA currently has no final plans for relocating them elsewhere. [Footnote: NNSA has initiated a study considering implications of potentially upgrading Livermore’s nuclear facility security and hazard categories for short periods to allow NNSA to continue and maintain needed plutonium-related capabilities. An NNSA official told us that NNSA is confident that the environmental pit testing capabilities will be maintained somewhere.] Government Accountability Office (GAO), “Modernizing The Nuclear Security Enterprise: New Plutonium Research Facility at Los Alamos May Not Meet All Mission Needs,” GAO-12-337, March 2012. <http://www.gao.gov/assets/590/589582.pdf>.

¹⁶ See <http://lasg.org/technical/lanl-hydrotest-index.htm> and links and <http://lasg.org/technical/info.htm>.

¹⁷ For a full explanation see Study Group letter to Levin, et. al., op. cit.

¹⁸ **“It is recognized that many of the prior [CMRR project] planning assumptions have changed....The decision about how far to proceed into final design [of the proposed Nuclear Facility] will be based on numerous ongoing technical reviews and other ancillary decisions NNSA management will be making during the period of FY 2009 - 2010. A future decision to proceed with construction of the Nuclear Facility and associated equipment has been deferred pending the outcome of the current ongoing Nuclear Posture Review and other strategic decision making.”** NNSA, FY2010 Congressional Budget Request, p. 215, emphasis added.

Slide 8:

- Erroneously states CMRR-NF design will be substantially complete by October 2012. This might or might not be true for the architectural design, the structure, but it is not true for long-lead equipment design, a major portion of the project, the design of which has been suspended, as project officials have publicly stated.¹⁹
- Deliverables for the balance of the year are indicated.
- Documents the planned erosion of the LANS project team over the course of the year, from March (254 people) to August (97 people), and on down to an average of 18 people in December 2012.
- Provides a LANS figure for the estimated unspent balances in the CMRR project as of September 30, 2012: \$120 M. What happens to those funds is a major decision facing NNSA and Congress.

Slide 9:

- Summarizes the 60-Day Study, again with the mysterious possibility of expanding capacity through the use of “offsite labs.”

Slide 10:

- Makes a pitch for funding in FY2013, which is certainly a key matter which must soon be decided soon.

¹⁹ See http://www.lasg.org/CMRR/LA-UR-12-23038_CMRR-Public-Mtg_25Apr2012-Vol-13.pdf.