

Project On Government Oversight

U.S. Nuclear Weapons Complex: Energy Department Plans to Waste Billions of Dollars on Unneeded Los Alamos Lab Facility

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EXECUTIVE SUMMARY

The Department of Energy (DOE) and National Nuclear Security Administration (NNSA) are proceeding with plans to construct the Chemistry and Metallurgy Research Replacement – Nuclear Facility (CMRR-NF) at Los Alamos National Laboratory (LANL). At the same time, nuclear policy experts and Members of Congress from both sides of the aisle are raising serious questions about the CMRR-NF’s mission, cost, and design:

- A growing body of scientific and policy experts challenge the need for the CMRR-NF.
- The House Appropriations Committee recommended that construction of CMRR-NF be delayed, noting in a report for the fiscal year 2008 budget, “The CMRR facility has no coherent mission to justify it unless the decision is made to begin an aggressive new nuclear warhead design and pit production mission at Los Alamos National Laboratory.”
- A former Sandia National Laboratories vice president, Bob Peurifoy, said in an affidavit about CMRR-NF, “Nowhere have I found a concise, objective description justifying its need...the Nuclear Facility might just sit there with nothing to do.”
- Former chair of the State Department’s Arms Control and Non-Proliferation Advisory Board and member of the highly respected JASON advisory group, Dr. Richard Garwin, said of CMRR-NF before a House appropriations committee, “I would suggest that one look at doing without the nuclear facility.”
- CMRR-NF is counter to the U.S. government’s commitment to shrinking its nuclear arsenal through the New START agreement and the President’s strategic guidance for a “smaller nuclear force.”
- The entire CMRR was originally supposed to cost taxpayers \$375 million, but the estimated costs for the CMRR-NF alone have now ballooned to an estimated \$3.7 billion to \$5.9 billion.
- The facility is unlikely to have any significant impact on job creation in the LANL region, creating no new permanent jobs.
- DOE and NNSA have failed to seriously consider less expensive alternatives to building CMRR-NF. They dismissed one plan largely on the basis that employees would have to “travel by vehicle” between two buildings that are about one mile apart.
- Many of the planned functions for CMRR-NF could be carried out at existing facilities in the nuclear weapons complex at a lower cost to taxpayers.
- CMRR-NF will not be fully operational until at least 2023, by which time most nuclear warheads will have gone through the Life Extension Program.

Recommendations

- 1) The Administration and DOE should cancel CMRR-NF and zero out funding for the project in the upcoming budget.
- 2) If the Administration and DOE fail to act, Congress should cancel funding for CMRR-NF in its next appropriations bill.
- 3) NNSA should continue using existing facilities, at LANL and elsewhere, in the nuclear weapons complex to meet credible nuclear modernization requirements.
- 4) Congress should amend Section 3114 of the Fiscal Year 2011 National Defense Authorization Act, “Notification of cost overruns for certain Department of Energy projects,” to reflect the stronger provisions in the current Nunn-McCurdy Act in order to improve the oversight of major cost overruns and schedule delays at the DOE.
- 5) Congress should require independent cost estimates of major DOE construction projects at an early milestone in those programs so there is more realism in estimating the costs of those projects.

INTRODUCTION

A proposed Department of Energy (DOE) facility, the Chemistry and Metallurgy Research Replacement–Nuclear Facility (CMRR-NF), that would enable the United States to increase its nuclear weapons production has morphed into a behemoth of overspending in the decade since planning began. The facility has been championed by a number of government officials and contractors who run the nuclear weapons complex and some Members of Congress despite the recent implementation of a treaty that will draw down U.S. nuclear weapons over the next decade. CMRR-NF now has an estimated cost of \$3.7 billion to \$5.9 billion,¹ but has no clear justification. POGO believes that plans for CMRR-NF must be halted now to save billions in taxpayer dollars.

On February 5, 2011, approximately 20 years after the end of the Cold War, the New START agreement entered into force.² Signed by President Barack Obama and Russian President Dmitry Medvedev and ratified by U.S. and Russian legislative bodies, New START will last ten years and calls for both countries to draw down their deployed strategic nuclear warheads to 1,550 each over the first seven years of the treaty.³ In a press conference two months before the treaty entered into force, President Obama lauded both Democrats and Republicans in Congress for approving New START, calling it “the most significant arms control agreement in nearly two decades.”⁴

Yet, the House Appropriations Committee said in a June 2011 report that the National Nuclear Security Administration (NNSA), which is the semiautonomous DOE agency that runs the nuclear weapons complex and would oversee the construction of CMRR-NF, has been expanding. “Despite promises for a leaner, more efficient and streamlined enterprise, the NNSA footprint has actually been growing over the past few years,” the report said, noting that the whole CMRR complex will be larger than the facility it is replacing.⁵

In 2002, plans were proposed to replace the current Chemistry and Metallurgy Research (CMR) building at the Los Alamos National Laboratory (LANL) in New Mexico.⁶ LANL is a government-owned, contractor-operated laboratory complex within the DOE and is the birthplace of the atomic

¹ Department of Energy, National Nuclear Security Administration, *FY 2012 Stockpile Stewardship and Management Plan: Report to Congress*, April 15, 2011, p. 65.

<http://www.fas.org/programs/ssp/nukes/nuclearweapons/SSMP-FY2012.pdf> (Downloaded November 4, 2011) (hereinafter *FY 2012 Stockpile Stewardship and Management Plan: Report to Congress*)

² Department of State, “New START Treaty Entry Into Force,” February 5, 2012.

<http://www.state.gov/r/pa/prs/ps/2011/02/156037.htm> (Downloaded January 10, 2012)

³ Department of State, Treaty Between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, April 8, 2010.

<http://www.state.gov/documents/organization/140035.pdf> (Downloaded October 10, 2011) (hereinafter New START Treaty)

⁴ The White House, Office of the Press Secretary, “News Conference by the President,” December 22, 2010.

<http://www.whitehouse.gov/the-press-office/2010/12/22/news-conference-president> (Downloaded October 15, 2011)

⁵ 112th Congress, House of Representatives, Energy and Water Development Appropriations Bill Report, 2012, Submitted June 2011, by Representative Rodney Frelinghuysen (R-NJ), from the Committee on Appropriations, p. 123.

http://appropriations.house.gov/UploadedFiles/FY_2012_ENERGY_AND_WATER_FULL_COMMITTEE_REPORT.pdf (Downloaded October 15, 2011) (hereinafter Energy and Water Development Appropriations Bill Report)

⁶ Department of Energy, National Nuclear Security Agency, Los Alamos National Laboratory, “Lab gets okay to begin preliminary design of CMR replacement facility,” July 24, 2002.

<http://www.lanl.gov/orgs/pa/newsbulletin/2002/07/24/text02.shtml> (Downloaded January 13, 2012)

bomb. CMR, is currently the largest building at LANL and plays numerous roles, including “support[ing] DOE programs in non-proliferation and nuclear safeguards, counter-proliferation, stockpile surveillance, nuclear materials technologies, basic chemistry, environmental stewardship, medical radioisotopes and technology development for waste treatment and minimization.”⁷ CMR has undergone massive upgrades in the past few decades.⁸

The current proposal for replacing CMR is known as the Chemistry and Metallurgy Research Replacement (CMRR) project, and had an initial estimate of \$375 million to design and construct.⁹ But in the decade since the initial proposal, the construction of a replacement still has not come to fruition and the project’s scope and estimated cost have increased substantially.

CMRR is composed of two facilities: the Radiological Laboratory/Utility/Office Building (RLUOB) and the CMRR-Nuclear Facility (CMRR-NF). RLUOB is largely an auxiliary facility and will house radiological laboratory space, offices, a utilities and services building for the entire CMRR complex, and training facilities and classrooms.¹⁰

The plan is that CMRR-NF will take over CMR’s main functions of housing laboratory space for the research and development of actinide chemical elements such as plutonium and providing storage for special nuclear material, and will add a vault capable of holding six metric tons of plutonium.¹¹ CMRR-NF “will operate in an integrated fashion” with LANL’s existing Plutonium Facility 4 (PF-4) and will free up space at PF-4 to manufacture pits,¹² which are the plutonium triggers at the core of nuclear weapons.

With a final design and construction cost of \$164 million,¹³ construction of RLUOB has already been completed. Equipment installation at the facility is to continue until 2013 and will cost another \$199 million.¹⁴ But as of early 2011 only 45 percent of the design of CMRR-NF had been completed and none of the construction had begun. If constructed, CMRR-NF would not be

⁷ Los Alamos National Laboratory, “Chemistry and Metallurgy Research Building.” <http://www.lanl.gov/news/pdf/CMRFact.pdf> (Downloaded October 20, 2011) (hereinafter “Chemistry and Metallurgy Research Building”)

⁸ “Chemistry and Metallurgy Research Building”

⁹ Los Alamos Study Group, “LANL Master Project List,” February 9, 2001.

http://lasg.org/CMRR/Litigation/LANL_Master_Project_List-FY2001.pdf (Downloaded October 1, 2011) (hereinafter “LANL Master Project List”)

¹⁰ Department of Energy, National Nuclear Security Administration, Office of Chief Financial Officer, *FY 2012*

Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors (DOE/CF-0057), February 2011, Vol. 1, p. 228.

http://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/FY%202012%20NNSA%20Congressional%20Budget%20Submission_0.pdf (Downloaded January 9, 2012) (hereinafter *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057))

¹¹ *Final Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, New Mexico* (DOE/EIS-0350-S1), pp. 2-7.

¹² *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 229.

¹³ *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 225.

¹⁴ *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 225.

functional until at least 2023. Its estimated cost is from \$3.7 billion to \$5.9 billion,¹⁵ up from estimates of \$375 million for the entire CMRR complex in 2001.¹⁶ These figures will likely change again in fiscal year (FY) 2013 when the NNSA will give its finalized baseline cost estimate and construction schedule for CMRR-NF to Congress, at which point only 90 percent of the design is expected to be completed.¹⁷ None of these figures take into account the additional cost of decontaminating and decommissioning the current CMR building, a process that would begin after CMRR-NF is functional, and that in 2004 was predicted to last four to five years and cost \$200 million to \$350 million.¹⁸

Additionally, the cost to maintain and operate the new facility is expected to be significantly greater than the cost to maintain and operate CMR. The maintenance budget for CMR in FY 2007 was \$5.9 million¹⁹; the maintenance budget for CMRR-NF alone will be \$93 million to \$148 million per year,²⁰ at least 15 times the cost to maintain the building it's replacing.

Still, these estimates are rough. In 2011, NNSA noted regarding CMRR-NF and the Uranium Processing Facility (UPF) in Tennessee, another proposed nuclear facility with an ever-increasing price tag, "At this stage in the process of estimating costs, it would not be prudent to assume NNSA knows all of the annual funding requirements over the lives of the projects."²¹

PROJECT WITHOUT A CAUSE

According to the NNSA, CMRR-NF is a replacement for the CMR building. However, the scope of planned activities at CMRR-NF has grown well beyond the capabilities of CMR, and the NNSA has not justified the need for these additional capabilities—some of which are in direct contradiction to U.S. plans to shrink its nuclear arsenal.

In fact, while considering the FY 2008 budget, the House Appropriations Committee recommended that construction of CMRR-NF be delayed, questioning the facility's mission:

¹⁵ *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 225.

¹⁶ "LANL Master Project List"

¹⁷ *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 156.

¹⁸ This estimate is in FY 2004 dollars. *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 239.

¹⁹ Department of Energy, National Nuclear Security Administration, Los Alamos National Laboratory, *Ten-year Site Plan: FY 2008-FY 2017* (F08 TYSP), January 9, 2007, pp. 114-116.

<http://web.archive.org/web/20100527130502/http://www.doeal.gov/FOIADocs/RR00395.pdf> (Downloaded January 9, 2012) (hereinafter *Ten-year Site Plan: FY 2008-FY 2017* (F08 TYSP))

²⁰ This range assumes that the replacement plant value is 2.5 percent of the facility's construction cost. *Ten-year Site Plan: FY 2008-FY 2017* (F08 TYSP), p. 114.

²¹ *2012 Stockpile Stewardship Plan Report to Congress*, p. 63.

The CMRR facility has no coherent mission to justify it unless the decision is made to begin an aggressive new nuclear warhead design and pit production mission at Los Alamos National Laboratory.²²

But Congress and the Obama Administration have specifically rejected the notion of new warhead design.²³

More recently, in a report on energy and water development appropriations for FY 2012, the House Appropriations Committee stated that “[m]any gaps remain in the planning efforts [for the Uranium Processing Facility and CMRR Project], and basic capability requirements and acquisition strategies continue to be re-evaluated.”²⁴

The plans for the new nuclear facility are based on a 1999 decision by the NNSA to transition the 550,000 square-foot, three-story CMR to its “end of life,” and to relocate its capabilities elsewhere as certain building wings were closed down.²⁵

CMRR-NF would fulfill many of the same missions as CMR, such as analytical chemistry and materials characterization, and the NNSA holds that CMRR-NF would be vital to operations at LANL: “The CMRR-NF capabilities support virtually all nuclear programs at LANL, including pit certification and surveillance, pit manufacturing, and waste operations.”²⁶ However, Steve Fong, a federal CMRR project manager, noted in 2010 that CMRR-NF’s mission could change. “We have built in a lot of flexibility into our laboratory space,” he said.²⁷

It is unclear what future needs LANL may have, but a couple of planned features make it clear that CMRR-NF would be more than a replacement facility. First, the plans include a vault capable of holding six metric tons of plutonium, which is roughly the amount of plutonium in 1,500 warheads.²⁸ This is nearly the limit of strategic deployed warheads the United States is allowed under New START. Still, even if the NNSA required ample space for plutonium storage, it already

²² 110th Congress, House of Representatives, Energy and Water Development Appropriations Bill, 2008, submitted June 11, 2008, by Representative Pete Visclosky (D-IN), from the Committee on Appropriations, p. 105.

<http://www.gpo.gov/fdsys/pkg/CRPT-110hrpt185/pdf/CRPT-110hrpt185.pdf> (Downloaded November 4, 2011)

²³ Office of Management and Budget, *Budget of the U.S. Government: Terminations, Reductions, and Savings*, Fiscal Year 2010, p. 55. <http://www.gpo.gov/fdsys/pkg/BUDGET-2010-TRS/pdf/BUDGET-2010-TRS.pdf> (Downloaded January 17, 2012)

²⁴ Energy and Water Development Appropriations Bill Report, p. 130.

²⁵ *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 228.

²⁶ *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 229. The plutonium pit is a component that starts the chain reaction in a nuclear weapon.

²⁷ Department of Energy, National Nuclear Security Administration, Los Alamos National Laboratory, *CMRR Public Meeting* (LA-UR 10-02173), March 3, 2010, Vol. 9, p. 13.

<http://www.lanl.gov/orgs/cmrr/publicmeetings/documents/proceedings/laur10-02173vol9.pdf> (Downloaded October 20, 2011)

²⁸ *LASG v. DOE/NNSA, Case 1:10-cv-00760-JCH-ACT, Testimony of Frank Von Hippel*, Princeton University Professor, April 27, 2011. http://www.lasg.org/CMRR/Litigation/von_Hippel_27Apr2011.html (Downloaded September 15, 2011) (hereinafter Frank Von Hippel Testimony)

has a secure space at the Nevada National Security Site,²⁹ home to the Device Assembly Facility (DAF). DAF includes 30 steel-reinforced concrete buildings that span about 100,000 square feet. DAF was intended to be a site for assembling nuclear test devices, but since the U.S. signed the test ban treaty in 1992, the facility supports activities from other laboratories such as LANL.³⁰ Stephen M. Younger, a former head of nuclear weapons research at LANL, has said that DAF has the space to store six metric tons of plutonium that would otherwise be stored at LANL.³¹ An internal NNSA document from 2007 also noted that the Nevada National Security Site has the capability to store special nuclear materials,³² which includes plutonium.

Second, although the NNSA said that CMRR-NF would not be the site of actual plutonium pit manufacturing, the facility would enable increased pit-building capabilities at LANL's PF-4.³³ However, the need to build *any* new pits is aggressively challenged by numerous experts from the nuclear weapons complex.

EXPERTS WEIGH IN

A variety of nuclear policy and weapons experts—some of whom are former NNSA officials—have expressed serious doubts about the necessity of CMRR-NF specifically, and of increased pit production generally. Expert opinions are particularly valuable in a discussion of CMRR-NF because specialized scientific and strategic knowledge is required to understand the facility's mission.

Dr. Everet Beckner, a former NNSA deputy administrator for defense programs, said in a 2009 hearing before the House Appropriations Subcommittee on Energy and Water Development that national security has changed significantly in recent years, requiring a new outlook on the nuclear weapons complex. He added, "I think it has become obvious to all of us that the complex is too large for the world that we live in today. . . ."³⁴ CMRR, which is larger than the facility it would replace³⁵ and which would enable higher levels of nuclear weapon production, would only increase this already oversized nuclear weapons complex.

²⁹ Nevada National Security Site was formerly called Nevada Test Site. Department of Energy, National Nuclear Security Agency, "Fact Sheet: Nevada National Security Site."

<http://nnsa.energy.gov/mediaroom/factsheets/nssfactsheet> (Downloaded January 13, 2012)

³⁰ Department of Energy, Nevada National Security Site, "Device Assembly Facility (DAF)."

http://www.nv.doe.gov/library/FactSheets/DOENV_1014.pdf (Downloaded November 4, 2011)

³¹ Conversation between Stephen M. Younger and Peter Stockton, February 15, 2011.

³² Department of Energy, National Nuclear Security Agency, "Complex 2030 SPEIS Data Call," 2007.

<https://www.documentcloud.org/documents/282738-complex-2030-speis-data-call-nnsa-2007.html> (hereinafter "Complex 2030 SPEIS Data Call")

³³ Testimony of William Tobey, National Nuclear Security Administration Deputy Administrator, and Robert Smolen, National Nuclear Security Administration Deputy Administrator, before the House Armed Services Subcommittee, on "NNSA's Fiscal Year 2009 Budget Request for Nuclear Nonproliferation and Defense Programs," March 12, 2008.

<http://nnsa.energy.gov/mediaroom/congressionaltestimony/03.12.08-0> (Downloaded September 15, 2011)

³⁴ 111th Congress, House of Representatives, Subcommittee on Energy and Water Development Appropriations, "Hearing on Energy and Water Development Appropriations for 2010," March 17, 2009, part 6, p. 172.

http://democrats.appropriations.house.gov/images/stories/pdf/ew/Hearing_Volumes/Energy-FY10-Pt6.pdf

(Downloaded November 4, 2011) (hereinafter "Hearing on Energy and Water Development Appropriations for 2010")

³⁵ Energy and Water Development Appropriations Bill Report, p. 123.

In the same hearing, Philip Coyle, a former associate director of Lawrence Livermore National Laboratory and former Department of Defense (DoD) and DOE official, also cautioned that the nuclear weapons complex and CMRR-NF in particular “should not be sized or funded by this subcommittee based on outmoded assumptions.”³⁶ He questioned the need for the increased pit production, citing the pits already stored at Pantex Plant in Texas as an alternative to the NNSA’s supposed need for a new facility to manufacture 80 new pits per year. Pantex stockpiles over 14,000 pits and has the capacity to store up to 20,000 pits. Coyle noted that Pantex was authorized to reuse up to 350 pits per year. “Thus, there is no shortage of pits for reuse or recycling, and, if needed, smaller numbers of pits can be made at Los Alamos,” he said.³⁷

According to Frank von Hippel, a nuclear physicist and a former assistant director for national security in the White House Office of Science and Technology, “The need for large-scale pit production has vanished,” and alternatives for CMRR-NF should be considered.³⁸ He added, in regard to PF-4, “The Plutonium Facility is a very capable facility without CMRR-NF...there are currently no foreseen requirements for the Plutonium Facility to manufacture pits.”³⁹ If pit production isn’t currently needed, then a major justification for CMRR-NF is moot.

Dr. Richard Garwin, a former chair of the State Department’s Arms Control and Non-Proliferation Advisory Board and member of the highly respected independent JASON advisory panel, said in a 2010 hearing on Energy and Water Development Appropriations that the plan to build CMRR-NF in addition to RLUOB, “does not seem to reflect clearly defined missions.” He added regarding CMRR-NF, “I would suggest that one look at doing without the nuclear facility.”⁴⁰

Bob Peurifoy, a former Sandia National Laboratories vice president who was involved in the design of five of the eight weapons types in the stockpile, was critical of CMRR-NF in an affidavit: “Nowhere have I found a concise, objective description justifying its need.”⁴¹

NO NEED FOR EXPANDED PLUTONIUM PIT PRODUCTION

There is good reason to be skeptical of NNSA’s claim that it needs to produce more plutonium pits, a key justification for CMRR-NF. First, NNSA has an established history of expressing a need for more pits, only to reduce its request significantly in the face of congressional questioning. Furthermore, recent research shows that existing pits are expected to last for about a century.

³⁶ “Hearing on Energy and Water Development Appropriations for 2010,” p. 194.

³⁷ “Hearing on Energy and Water Development Appropriations for 2010,” p. 195.

³⁸ Frank Von Hippel Testimony

³⁹ Frank Von Hippel Testimony

⁴⁰ “Hearing on Energy and Water Development Appropriations for 2010,” p. 192.

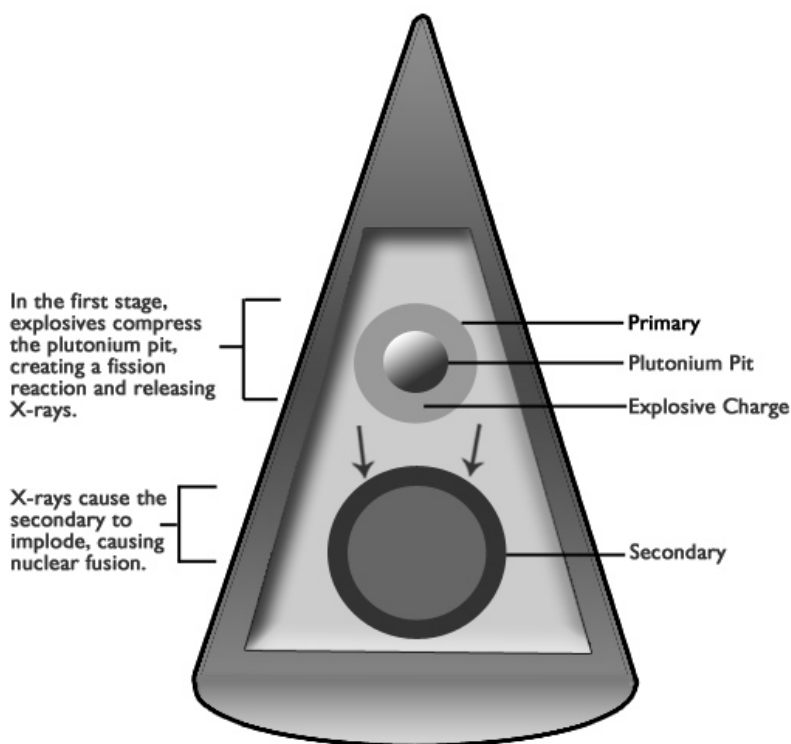
⁴¹ *Los Alamos Study Group v. Department of Energy, et al., Case No. 1:10-CV-0760-JH-ACT, Affidavit of Bob Peurifoy*, November 1, 2010, pp.1-3. http://lasg.org/CMRR/Litigation/Peurifoy_Bob_1Nov2010.pdf (Downloaded December 7, 2011) (hereinafter Affidavit of Bob Peurifoy) In response, the DOE said that Peurifoy’s conclusions were those of a “private citizen,” calling his affidavit “a classic example of an attempt to second-guess an agency’s reliance on its own experts...” *Los Alamos Study Group v. Department of Energy, et al., Case No. 1:10-CV-0760-JH-ACT, Document 23*, Filed December 20, 2010. lasg.org/CMRR/Litigation/D%27s_Opp_MPI/D%27s_Opp_MPI_20Dec2010.pdf (Downloaded January 11, 2012)

In the mid-2000s, the NNSA was beginning planning on the Modern Pit Facility (MPF), which would have been a pit manufacturing site capable of producing up to 450 pits per year.⁴² After the House Energy and Water Appropriations Subcommittee questioned the need for this capacity, the NNSA returned with a proposal of a site that could produce 125 pits per year.⁴³ The Subcommittee questioned the second proposal, and the NNSA made a final proposal that LANL produce 80 pits per year. As *Mother Jones* magazine reported in 2008, a former Subcommittee chairman, former Representative David Hobson (R-OH), said he was surprised that NNSA reduced its proposals with no argument. “These were nuclear weapons we were talking about, and they hadn’t given it more thought than that?” he said.⁴⁴

Given NNSA’s ever-changing requests for pit production levels, it appears as though the agency does not actually know how many pits it needs. So, a fundamental question remains: What level of pit production should the United States maintain?

The U.S. currently has over ten thousand pits in storage at Pantex.⁴⁵ It was originally feared that the plutonium in pits would gradually degrade over time, which would perhaps make weapons less reliable. However, the independent JASON advisory panel found in 2007 that plutonium degrades much more slowly than previously thought. The research shows that “the primaries [pits] of most weapons system types in the stockpile have credible minimum lifetimes in excess of 100 years and that the intrinsic lifetime of Pu [plutonium] in the pits is greater than a century.”⁴⁶ The stockpile average age was 20 years old in 2005,⁴⁷ which means that those weapons’

The Essentials of a Thermonuclear Warhead



⁴² Department of Energy, National Nuclear Security Administration, *Draft Supplemental Programmatic Environmental Impact Statement on Stockpile Stewardship and Management for a Modern Pit Facility*, May 2003, Vol. 1, Chapters 1-11, p. 5-1. <http://energy.gov/sites/prod/files/EIS-0236-S2-DEIS-01-2003.pdf> (Downloaded December 9, 2011)

⁴³ “Hearing on Energy and Water Development Appropriations for 2010,” p. 195.

⁴⁴ James Sterngold, “Failure to Launch,” *Mother Jones*, January/February 2008. <http://motherjones.com/politics/2008/01/failure-launch> (Downloaded September 10, 2011)

⁴⁵ “Hearing on Energy and Water Development Appropriations for 2010,” p. 195.

⁴⁶ The MITRE Corporation, JASON, *Pit Lifetime* (JSR-06-335), January 27, 2007, p. 19. <http://www.fas.org/irp/agency/dod/jason/pit.pdf> (Downloaded October 1, 2011)

⁴⁷ Department of Energy, Sandia National Laboratories, *Stockpile Surveillance: Past and Future* (SAND95—2751), January 1996, p. 2. <http://www.fas.org/sgp/othergov/doe/lanl/osti/197796.pdf> (Downloaded November 7, 2011)

plutonium pits have, on average, 70 more years of life, if not more.⁴⁸ As a result, new pits will not be needed for decades to come. If new pits were needed, PF-4 could soon be able to produce “as much as 50 pits per year,” according to an NNSA data call from 2007.⁴⁹

If a pit does have to be replaced, the Obama Administration said it gives “strong preference” to refurbishing or reusing pits, rather than producing new pits.⁵⁰ In its 2010 Nuclear Posture Review (NPR), the DoD said, “Replacement of nuclear components [including pits] would be undertaken only if critical Stockpile Management Program goals could not otherwise be met, and if specifically authorized by the President and approved by Congress.”⁵¹ As noted earlier, the U.S. nuclear weapons complex has a stockpile of 14,000 pits and is currently authorized to reuse up to 350 per year.

In order to extend the life of the warhead, NNSA has the Life Extension Program (LEP), which aims to increase the lifetimes of existing weapons by refurbishing and replacing certain components as necessary.⁵² In 2009, JASON released a report about its analysis of NNSA’s LEP, which found that, “Lifetimes of today’s nuclear warheads could be extended for decades, with no anticipated loss in confidence, by using approaches similar to those employed in LEPs to date.”⁵³ Sources tell POGO approximately 1,000 warheads have gone through LEP (the precise number is classified) and none of the pits in those warheads required any work: According to Peurifoy, “No Life Extension Projects [*sic*] (LEPs) for stockpile warheads and bombs have involved the pit.”⁵⁴

Most planned nuclear warhead LEPs will be finished by the time CMRR-NF is operational in 2023.⁵⁵ In addition, as a result of New START and the Nuclear Posture Review, which will be discussed later in this report, the U.S. nuclear arsenal will likely be much smaller in the future, meaning that even fewer warheads will need to go through LEP by the time CMRR-NF is completed.

These factors mean that CMRR-NF may be unnecessary.

“[P]it production enabled by CMRR-NF is not needed to maintain U.S. nuclear weapons for decades to come,” former Sandia Laboratories Vice President Bob Peurifoy said in 2010. “As a result, the Nuclear Facility might just sit there with nothing to do.”⁵⁶

⁴⁸ The MITRE Corporation, JASON, *Lifetime Extension Program: Executive Summary* (JSR-09-334E), September 9, 2009, p. 2. <http://www.fas.org/irp/agency/dod/jason/lep.pdf> (Downloaded October 1, 2011) (hereinafter *Lifetime Extension Program: Executive Summary* (JSR-09-334E))

⁴⁹ “Complex 2030 SPEIS Data Call,” p. 95.

⁵⁰ Department of Defense, *Nuclear Posture Review Report*, April 2010, p. xiv.

<http://www.defense.gov/npr/docs/2010%20Nuclear%20Posture%20Review%20Report.pdf> (Downloaded November 4, 2011) (*Nuclear Posture Review Report*)

⁵¹ *Nuclear Posture Review Report*

⁵² Department of Energy, National Nuclear Security Administration, “Life Extension Programs.”

<http://nnsa.energy.gov/ourmission/managingthestockpile/lifeextensionprograms> (Downloaded September 10, 2011)

⁵³ *Lifetime Extension Program: Executive Summary* (JSR-09-334E), p. 2.

⁵⁴ Affidavit of Bob Peurifoy, p. 4

⁵⁵ Department of Energy, National Nuclear Security Administration, *Annex A: FY 2011 Stockpile Stewardship Plan*, May 2010, p. 21. http://www.nukewatch.org/importantdocs/resources/Stockpile_Stewardship_Plan_Annex_A_0610.pdf (Downloaded November 4, 2011)

⁵⁶ Affidavit of Bob Peurifoy, p. 4.

THE BLOATED U.S. NUCLEAR ARSENAL

The U.S. nuclear arsenal dates back to the creation of the country's first nuclear weapon in 1945. During the Cold War, the U.S. stockpile exceeded 20,000 weapons.⁵⁷ While the stockpile has since decreased significantly, it is only in the past few years that the U.S. has embraced a nuclear strategy *not* based on Cold War thinking. Insistence on the increased pit production enabled by CMRR-NF demonstrates a shift backwards.

In 1991, the United States and the Union of Soviet Socialist Republics signed the first Strategic Arms Reduction Treaty (START I), which called for each country to reduce its strategic deployed warheads to 6,000 within seven years after the treaty entered into force. START I entered into force in 1994, and Russia, Belarus, Kazakhstan, and Ukraine—the nuclear states that succeeded the USSR—and the United States met the treaty goals by 2001.⁵⁸

Even with the START I reductions, U.S. nuclear strategy was outdated, according to the 2001 Nuclear Posture Review. “In the decade since the collapse of the Soviet Union, planning for the employment of U.S. nuclear forces has undergone only modest revision, despite the new relationship between the U.S. and Russia,” it said.⁵⁹

Under New START, which entered into force in 2011 and will last for ten years, the United States and Russia agreed to further reduce their strategic deployed warheads to 1,550 during the first seven years of the treaty.⁶⁰

As part of New START, the State Department reported that, as of February 2011, the United States had 1,800 deployed strategic warheads, or 250 more than the treaty will allow. Russia had 1,537 strategic deployed warheads, meaning the country was already below the treaty limits.⁶¹

The United States also maintains a large number of reserves and spares. According to estimates in 2010 by Robert S. Norris and Hans M. Kristensen of the Federation of American Scientists, the total DoD stockpile consisted of about 5,000 warheads. DOE also had 3,500 to 4,500 excess warheads awaiting dismantlement, and 14,000 pits stored at Pantex.⁶²

⁵⁷ Department of Defense, “Fact Sheet: Increasing Transparency in the U.S. Nuclear Weapons Stockpile,” May 3, 2010. http://www.defense.gov/npr/docs/10-05-03_Fact_Sheet_US_Nuclear_Transparency_FINAL_w_Date.pdf (Downloaded November 7, 2011) (“Fact Sheet: Increasing Transparency in the U.S. Nuclear Weapons Stockpile”)

⁵⁸ Department of State, Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms, July 31, 1991.

<http://www.state.gov/www/global/arms/starthtm/start/start1.html> (Downloaded October 10, 2011) (START I)

⁵⁹ Department of Defense, *Nuclear Posture Review Report*, Reconstruction by Hans M. Kristensen, p. 3.

http://www.fas.org/blog/ssp/united_states/NPR2001re.pdf (Downloaded November 4, 2011)

⁶⁰ New START Treaty

⁶¹ Department of State, “New START Treaty Aggregate Numbers of Strategic Offensive Arms: Fact Sheet,” June 1, 2011. <http://www.state.gov/t/avc/rls/164722.htm> (Downloaded January 6, 2012) (hereinafter “New START Treaty Aggregate Numbers of Strategic Offensive Arms: Fact Sheet”)

⁶² Robert S. Norris and Hans M. Kristensen, “Global nuclear weapons inventories, 1945-2010,” *Bulletin of the Atomic Scientists*, July 1, 2010, 66:77, pp. 77-83. <http://bos.sagepub.com/content/66/4/77.full.pdf+html> (Downloaded November 4, 2011) (hereinafter “Global nuclear weapons inventories, 1945-2010”)

The U.S. nuclear stockpile is rivaled only by Russia's stockpile, but the best estimates show that Russia has been consistently decreasing the number of its warheads and now has a large backlog awaiting dismantlement. All other nuclear weapons states possess significantly fewer warheads.⁶³

Why, then, build CMRR-NF? The facility will not only cost billions of dollars over its original estimate, but will substantially increase the capabilities of the U.S. nuclear weapons complex at a time when the world's only other nuclear superpower has demonstrated its commitment to draw down its weapons and the world's other nuclear states possess dramatically smaller stockpiles.

LOCATION, LOCATION, LOCATION?

It wasn't until a group filed a lawsuit against the DOE and NNSA that the agencies addressed the fact that they were basing plans for CMRR-NF on outdated construction estimates and environmental studies. Despite the fact that CMRR-NF still faces multiple, expensive design and construction challenges, the NNSA rejected alternative plans—such as continued use of parts of CMR—on the basis of inconvenience to laboratory employees. But is convenience really worth spending nearly \$6 billion?

In 2010, the Los Alamos Study Group (LASG), a New Mexico-based non-profit, introduced litigation against DOE and NNSA to halt the design and construction of CMRR-NF on the basis that DOE's Environmental Impact Statement (EIS) for the facility had not been updated since major changes were made to the scope of the project.⁶⁴ Under the National Environmental Policy Act (NEPA), DOE is required to formally analyze the environmental impact of proposed projects. According to LASG, however, “[DOE] prepared an EIS under the NEPA in 2003 for a much simpler and less environmentally impactful nuclear facility concept.”⁶⁵ In May 2011, a U.S. district judge dismissed the case.⁶⁶ LASG has since appealed the judge's decision and filed a parallel lawsuit.⁶⁷

However, the initial lawsuit helped bring important information about CMRR-NF to light: It prompted DOE to release a Final Supplemental Environmental Impact Statement (SEIS) in August

⁶³ Russia had 12,000 warheads in 2010, according to estimates by Norris and Kristensen. The remaining nuclear weapons states—France, China, Great Britain, Israel, Pakistan, India, and North Korea—possess 300 or fewer (and often far fewer) nuclear warheads each, and doubts exist if North Korea's ballistic missiles are, in fact, operational. “Global nuclear weapons inventories, 1945-2010,” pp. 78-79.

⁶⁴ Letter from Thomas M. Hansko, Attorney, to Dr. Steven Chu, Secretary, Department of Energy, regarding “A new Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) is needed for the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR-NF) at Los Alamos National Laboratory,” July 1, 2010. lasg.org/CMRR/Litigation/LASG_LOI_1Jul2010.pdf (Downloaded January 11, 2012)

⁶⁵ *Los Alamos Study Group v. Department of Energy, et al., Case No. 1:10-CV-0760-JH-ACT, Complaint for Declaratory Judgment and Injunctive Relief Under the National Environmental Policy Act of 1969*, filed on August 16, 2010, p. 2. lasg.org/CMRR/Litigation/LASG_complaint_16Aug2010.pdf (Downloaded January 11, 2012)

⁶⁶ *Los Alamos Study Group v. Department of Energy, et al., Case No. 1:10-CV-0760-JH-ACT, Memorandum Opinion and Order, Document 55*, filed on May 12, 2011. lasg.org/CMRR/Litigation/JudgeHerreraDecision_23May2011.pdf (Downloaded January 11, 2012)

⁶⁷ Los Alamos Study Group, “CMRR Nuclear Facility: Litigation under the National Environmental Policy Act (NEPA), Case 6:11-cv-00946, Federal District Court of New Mexico,” updated January 11, 2012. lasg.org/CMRR/Litigation/CMRR-NF_litigation.html (Downloaded January 12, 2012)

2011 that addressed environmental and, notably, seismic concerns at LANL. The report noted that seismic considerations are particularly relevant in light of the catastrophic March 2011 earthquake at the Fukushima Daiichi Nuclear Power Plant in Japan.⁶⁸

Data show that the seismic risk at LANL is considerably higher than was previously thought, shedding serious doubt on the safety of yet another massive nuclear facility in the area.⁶⁹ Earthquake damage at nuclear facilities can lead to fires, chemical explosions, or accidental chain reactions.

The SEIS addressed proposed alternatives to CMRR-NF that were submitted to the NNSA as public comments. The SEIS called one plan to continue operations at CMR while shifting some laboratory and auxiliary functions to RLUOB “a prudent measure in light of possible future fiscal constraints.”⁷⁰ However, it dismissed the plan citing, among other reasons, “considerable operational inefficiencies” in which “personnel would have to travel by vehicle between offices and radiological laboratories at RLUOB and Hazard Category 2 laboratories that remain in the CMR Building.”⁷¹ Considering that RLUOB and CMR are only about one mile apart,⁷² this argument should not be a basis for dismissing the plan.

The SEIS dismissed a similar plan to use PF-4 in conjunction with RLUOB because, if a plutonium storage vault was built at PF-4, the facility would not be able to accommodate all of CMR’s missions. (RLUOB cannot take on these missions because it was not built to handle hazardous materials, such as plutonium.)⁷³ However, DOE said it plans to refurbish PF-4.⁷⁴ In doing so, it could free up space at PF-4 for CMR’s mission. For instance, PF-4’s Plutonium-238 refining mission, which takes up at least 15 percent of the facility’s floor space,⁷⁵ could be consolidated at

⁶⁸ *Final Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, New Mexico* (DOE/EIS-0350-S1), p. vi.

⁶⁹ URS Corporation, *Update of the Probabilistic Seismic Hazard Analysis and Development of Seismic Design Ground Motions at the Los Alamos National Laboratory*, May 25, 2007, p. ES-4.

lasg.org/CMRR/Litigation/Mello_aff1_ref/Par16_Ref1_PSHA_report_May2007.pdf (Downloaded November 4, 2011)

⁷⁰ *Final Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, New Mexico* (DOE/EIS-0350-S1), p. S-10.

⁷¹ *Final Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, New Mexico* (DOE/EIS-0350-S1), p. S-10.

⁷² *Final Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, New Mexico* (DOE/EIS-0350-S1), p. S-6.

⁷³ *Final Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, New Mexico* (DOE/EIS-0350-S1), pp. S-22 – S-23.

⁷⁴ *Final Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, New Mexico* (DOE/EIS-0350-S1), pp. S-22 – S-23.

⁷⁵ Department of Energy, National Nuclear Security Agency, *Los Alamos National Laboratory, Alternatives for Increasing the Nuclear Materials Processing Space at Los Alamos for Future Missions* (LA-UR-97-1000), p. 17. <http://library.lanl.gov/cgi-bin/getfile?00326510.pdf> (Downloaded January 13, 2012)

DOE's Savannah River Site in South Carolina or to Idaho National Laboratory, both of which currently handle Plutonium-238.

DESIGN-BUILD IS A BAD CONSTRUCTION STRATEGY

As plans for CMRR-NF have moved forward, DOE has been relying on a design-build strategy for CMRR-NF, which means that design and construction occur concurrently, with one contractor overseeing both stages. DOE's reliance on that strategy has come under fire, as it has resulted, in past nuclear facility projects, in costly problems where key safety issues were not identified until after construction started. It differs from the design-bid-build strategy, in which one contractor develops the design and another oversees construction.⁷⁶ Design-build may work well for home kitchens, but it has plagued DOE projects with technological failure, delays, and huge cost overruns.⁷⁷

The Defense Nuclear Facilities Safety Board's (DNFSB) *Seventeenth Annual Report to Congress* in 2007 questioned the design-build strategy at CMRR-NF, noting, "The Board has stressed that for this plan to be successful, aggressive oversight will be required by federal and contractor personnel experienced in the management and oversight of large, complex projects. There are many safety-related issues and concerns with this project that remain to be resolved."⁷⁸

This lack of confidence in DOE's design and construction management has become evident in the appropriations process. The House Appropriations Committee recommended granting CMRR-NF only \$200 million instead of the requested \$300 million for FY 2012. The Committee's report explains that it would grant money for design work but not for construction, because the NNSA "must first resolve major seismic issues with its design, complete its work to revalidate which capabilities are needed, and make a decision on its contracting and acquisition strategies."⁷⁹

Given the likelihood of design and construction problems at CMRR-NF because of DOE's past problems, it is highly risky for construction to go forward. It is apparent that less costly alternative plans that do not involve a new building could satisfy DOE's and NNSA's needs, if only the agencies would give those plans serious consideration.

⁷⁶ Ron Morgan, *The Design-Build Approach for DOE Nuclear Facilities: Can Compliance with 10CFR835 ALARA Requirements be Achieved?* (LA-UR-00-146), October 4, 2000.

<http://www.osti.gov/bridge/servlets/purl/763267-IT11YD/webviewable/763267.pdf> (Downloaded January 10, 2012)

⁷⁷ Robert Alvarez, "Reducing the Risks of High-Level Radioactive Wastes at Hanford, Science and Global Security," *Science and Global Security*, 2005, Vol. 13, pp. 43–86. <http://www.princeton.edu/sgs/publications/sgs/pdf/13%201-2%20alvarez%2043%2086.pdf> (Downloaded January 11, 2012)

⁷⁸ Defense Nuclear Facilities Safety Board, *Seventeenth Annual Report to Congress*, February 17, 2007, p. 49. http://www.dnfsb.gov/sites/default/files/Board%20Activities/Reports/Reports%20to%20Congress/2007/ar_2007228_244.pdf (Downloaded October 18, 2011)

⁷⁹ Energy and Water Development Appropriations Bill Report, p.131.

DOE'S PAST SHOULD GIVE CONGRESS PAUSE

DOE has a track record of dumping taxpayer dollars into wasteful projects, having so mismanaged projects that they were completed well over budget and behind schedule. This past should not inspire confidence in the current management of plans for CMRR-NF. For example, the Mixed Oxide (MOX) Fuel Fabrication Facility at the Savannah River Site has gradually grown more expensive and less justifiable since its inception. The cost of the facility, initially estimated to be \$1.4 billion,⁸⁰ is now estimated to surpass \$4.86 billion.⁸¹ Yet, the project continues despite the fact that the only known buyer for MOX fuel dropped the contract.⁸² One assessment indicates that this project will cost \$6.5 billion to \$7.5 billion, and will most likely require further exorbitant design changes.⁸³

For more than 20 years, the Government Accountability Office (GAO) has identified DOE's contract management as a "high risk" program, noting in February 2011 that, "DOE's record of inadequate management and oversight of contractors has left the department vulnerable to fraud, waste, abuse, and mismanagement."⁸⁴

GAO highlighted NNSA as a particularly problematic agency within the Department. Although DOE has taken steps to get itself off the "high risk" list, GAO said that, "both NNSA and EM [Office of Environmental Management] continue to struggle to develop credible and reliable cost estimates, meet cost and schedule goals on projects, and overcome other related project management challenges."⁸⁵ Notably, GAO concluded, "NNSA lacks the management information necessary to make cost-benefit decisions on infrastructure investment."⁸⁶

In 2009 testimony before the House Appropriations Subcommittee on Energy and Water Development, a GAO official said that, of the ten NNSA and EM projects the GAO reviewed for a March 2007 report, 80 percent had cost overruns (with these additional costs totaling \$14 billion), and 90 percent were completed behind schedule (adding 45 years to the initial schedule estimates).⁸⁷

⁸⁰ Government Accountability Office, *Department of Energy: Major Construction Projects Need a Consistent Approach for Assessing Technology Readiness to Help Avoid Cost Increases and Delays* (GAO-07-336), March 2007.

<http://www.gao.gov/new.items/d07336.pdf> (Downloaded January 27, 2012)

⁸¹ *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 291.

⁸² Securities and Exchange Commission, "Form 10-K: Duke Energy Corporation," December 31, 2008.

<http://www.sec.gov/Archives/edgar/data/1326160/000119312509041096/d10k.htm> (Downloaded January 17, 2012)

⁸³ Email from EMPublications to Martin Schneider, regarding "Weapons Complex Morning Briefing—6/29/2011," June 29, 2011.

⁸⁴ Government Accountability Office, *High Risk Series: An Update* (GAO-1-278), February 2011, p. 129.

<http://www.gao.gov/new.items/d11278.pdf> (Downloaded October 10, 2011) (hereinafter *High Risk Series: An Update* (GAO-1-278))

⁸⁵ *High Risk Series: An Update* (GAO-1-278), p. 31.

⁸⁶ *High Risk Series: An Update* (GAO-1-278), p. 130.

⁸⁷ Testimony of Gene Aloise, Government Accountability Office, before the Subcommittee on Energy and Water Development, Committee on Appropriations of the House of Representatives, on "Contract and Project Management Concerns at the National Nuclear Security Administration and Office of Environmental Management," March 4, 2009, p. 3. <http://www.gao.gov/new.items/d09406t.pdf> (Downloaded September 15, 2011) (hereinafter Testimony of Gene Aloise)

As the September 2011 Senate Energy and Water Development Appropriations Bill report noted, “The Committee believes NNSA must do more to build confidence it has the ability to execute large line item construction projects within budget and on schedule.”⁸⁸

Although Congress is often paralyzed in the face of cancelling a project with significant sunk costs, it does have a history of stepping in to cancel DOE projects that wildly exceed their budgets, even after construction has begun. In 1983, after sinking \$1.7 billion, Congress cancelled the Clinch River Breeder Reactor after its cost estimate ballooned from \$500 million to \$4 billion. Two years later, Congress cancelled the Gas Centrifuge Enrichment Plant after the project nearly doubled its initial cost estimate to \$8.6 billion, even after spending \$3 billion. Congress cancelled the New Production Reactor by 1993 after spending \$1.3 billion on the project without ever determining a cost estimate. And one year later, after already spending \$2.1 billion, Congress cancelled the Superconducting Super Collider, whose cost estimate increased from \$5.9 billion to \$8.3 billion.⁸⁹

Given the billion-dollar waste of these and other past projects, CMRR-NF doesn’t seem like a promising investment.

But, construction has not yet begun on CMRR-NF, so there is still time to avoid similar sunk costs. RLUOB’s existence is not an argument for the construction of CMRR-NF. Hopefully, Congress will speak out against CMRR-NF sooner than later and save billions of dollars.

On a systemic level, unlike the DoD, the DOE lacks stringent triggers for reporting to Congress when there is massive cost and schedule growth with its major construction projects. A law called the Nunn-McCurdy Act (10 U.S.C. § 2433) gives Congress “substantial visibility into the cost performance of the acquisition stage of MDAP [major defense acquisition programs]” at the DoD, according to the Congressional Research Service (CRS).⁹⁰ At the DoD, two kinds of cost breaches can trigger the executive branch to take action: A “significant” breach occurs when a program’s cost estimate

...increases 15% or more over the current baseline estimate or 30% or more over the original baseline estimate. A “critical” breach occurs when the program acquisition or the procurement unit cost increases 25% or more over the current baseline estimate or 50% or more over the original baseline estimate.⁹¹

If the breach is a more serious critical breach it will lead to program termination “unless the Secretary of Defense certifies the program.” Certification commonly occurs, but it does provide an

⁸⁸ 112th Congress, Senate, Energy and Water Development Appropriations Bill, 2012, Submitted September 7, 2011, by Senator Dianne Feinstein (D-CA), from the Committee on Appropriations, p. 113.

<http://www.gpo.gov/fdsys/pkg/CRPT-112srpt75/pdf/CRPT-112srpt75.pdf> (Downloaded November 7, 2011) (hereinafter Senate, Energy and Water Development Appropriations Bill, 2012)

⁸⁹ President’s Commission to Study Capital Budgeting, “Budgeting for Investments in New Facilities for the Department of Energy,” June 19, 1998. http://clinton3.nara.gov/pcscb/rmo_energy.html (Downloaded October 15, 2011)

⁹⁰ Congressional Research Service, *The Nunn-McCurdy Act: Background, Analysis, and Issues for Congress* (R41293), June 21, 2010. <http://www.fas.org/spp/crs/misc/R41293.pdf> (Downloaded January 17, 2012) (hereinafter *The Nunn-McCurdy Act: Background, Analysis, and Issues for Congress* (R41293))

⁹¹ *The Nunn-McCurdy Act: Background, Analysis, and Issues for Congress* (R41293), Executive Summary.

opportunity for greater scrutiny.⁹² “For programs that are certified, DOD must (1) revoke the prior milestone approval, (2) restructure the program, and (3) provide Congress a written explanation of the root-cause of the cost growth,” according to CRS.⁹³

A law similar to DoD’s Nunn-McCurdy Act exists for DOE programs but is weaker. Section 3114 of the Fiscal Year 2011 National Defense Authorization Act, “Notification of cost overruns for certain Department of Energy projects,” also establishes transparency and reporting requirements for major DOE defense-funded construction projects and defense environmental management projects (greater than \$50 million) and all LEPs.⁹⁴ However, the law’s standard for triggering a breach is more permissive and the requirements for notifying congressional defense committees are less rigorous than what exists for major DoD weapons programs.

Under Section 3114, major construction and LEP projects must exceed 125 percent of their original baseline costs and a LEP warhead must exceed 200 percent of its original baseline cost in order to trigger the notification requirement for excessive costs. Additionally, unlike its DoD counterpart, there is no requirement that Section 3114 be applied from construction milestone-to-milestone. The projected costs at a specific construction milestone could exceed the estimated costs by greater than 125 percent, but as long as total cost does not exceed 125 percent of the original baseline cost, DOE does not have to report the cost growth to Congress. Finally, the reporting requirements for DOE cost breaches require the agency to notify congressional defense committees whether the project will be terminated or continued. If the program is continued, DOE must provide a revised cost and schedule baseline (and in the case of LEPs, a revised estimate of each warhead in the project), certify that it actually needs the project and there is no alternative, and that there is a management structure in place to “manage and control the cost and schedule of the project.”⁹⁵ Unlike the DOD’s Nunn-McCurdy law, milestone approval is not contingent on actually keeping costs low and there is no threat of program restructuring.

Another difference between DoD and DOE is the new DoD Cost Assessment and Program Evaluation (CAPE) office, which conducts independent cost estimates. Created by the 2009 Weapon Systems Acquisition Reform Act, CAPE is required to “ensure that the cost estimation and cost analysis processes of the Department of Defense provide accurate information and realistic estimates of cost for the acquisition programs of the Department of Defense.”⁹⁶ One of the biggest problems with DOE construction projects is their initial cost estimates start out unrealistically low,

⁹² For instance, the Joint Strike Fighter broke Nunn-McCurdy thresholds. Letter from Ashton B. Carter, Under Secretary of Defense for Acquisition, Technology and Logistics, to The Honorable Ike Skelton, Chairman of the Committee on Armed Services, June 1, 2010. <http://pogoarchives.org/m/ns/jsf/f35-nunn-mccurdy-certification-20100601.pdf> The JSF Nunn-McCurdy breach was cited in a Senate hearing. Senate Armed Services Committee, Hearing to Receive Testimony on the F-35 Joint Strike Fighter Program in Review of the Defense Authorization Request for Fiscal Year 2012 and Future Years Defense Program, May 19, 2011. <http://armed-services.senate.gov/Transcripts/2011/05%20May/11-43%20-%205-19-11.pdf> (Downloaded January 17, 2012)

⁹³ *The Nunn-McCurdy Act: Background, Analysis, and Issues for Congress* (R41293), p. 9.

⁹⁴ Ike Skelton National Defense Authorization Act for Fiscal Year 2011, Public Law 111-383, January 7, 2011. <http://www.gpo.gov/fdsys/pkg/PLAW-111publ383/pdf/PLAW-111publ383.pdf> (Downloaded January 17, 2011) (hereinafter Public Law 111-383)

⁹⁵ Public Law 111-383, 124 Stat. 4511.

⁹⁶ Weapons Systems Acquisition Reform Act of 2009, Public Law 111-23, May 22, 2009.

<http://www.acq.osd.mil/se/docs/PUBLIC-LAW-111-23-22MAY2009.pdf> (Downloaded January 17, 2012)

as in the case of CMRR-NF, and balloon to a much larger cost.⁹⁷ CAPE's role at DoD is to achieve realism in cost estimation so Congress and the executive branch will know what the cost is more likely to be before budget requests and appropriations are made.

Similarly, in 2008, the DOE established its now-defunct Office of Cost Analysis (OCA), which was intended "to improve the department's cost-estimating capabilities and better ensure that its project cost estimates are reliable by providing a new independent cost-estimating function for the department."⁹⁸ The Government Accountability Office considers the creation of OCA one of DOE's few achievements in trying to produce more accurate cost estimates.⁹⁹ However, in 2011, DOE reorganized and rather than dissolve its Office of Engineering and Construction Management, whose historical cost estimates are demonstrably poor, OCA was disbanded.¹⁰⁰

At times, the Army Corps of Engineers has conducted independent cost estimates for DOE.

With CMRR, the DOE has utilized the services of CAPE and the Army Corps. According to a February 2011 DOE budget submission, CAPE was to conduct an independent cost estimate for CMRR-NF. Also, in late 2010, the Army Corps "completed a review of the methods and procedures used to develop estimates for CMRR design efforts resulting in improvements for transparency in the provided estimate."¹⁰¹ However, it is unfortunate that independent cost estimators were not utilized in earlier stages of CMRR budgeting.

Greater transparency and more stringent reporting requirements for DOE projects that undergo massive cost growth could help Congress conduct oversight. More realism in cost estimation early on by independent cost estimators could help stop boondoggles before large amounts of money are spent.

⁹⁷ Testimony of Gene Aloise

⁹⁸ Government Accountability Office, *Modernizing the Nuclear Security Enterprise: The National Nuclear Security Administration's Proposed Acquisition Strategy Needs Further Clarification and Assessment* (GAO-11-848), September 2011, p. 15. <http://www.gao.gov/assets/330/323619.pdf> (Downloaded January 17, 2011) (hereinafter *Modernizing the Nuclear Security Enterprise: The National Nuclear Security Administration's Proposed Acquisition Strategy Needs Further Clarification and Assessment* (GAO-11-848))

⁹⁹ Government Accountability Office, *Department of Energy: Actions Needed to Develop High-Quality Cost Estimates for Construction and Environmental Cleanup Projects* (GAO-10-199), January 2010, p. 21. <http://www.gao.gov/new.items/d10199.pdf> (Downloaded January 17, 2012)

¹⁰⁰ *Modernizing the Nuclear Security Enterprise: The National Nuclear Security Administration's Proposed Acquisition Strategy Needs Further Clarification and Assessment* (GAO-11-848), p. 15.

¹⁰¹ "The CMRR project team continues to work with the DOE Office of the Chief Financial Officer (CFO), the US Army Corps of Engineers (USACE) and the Department of Defense (DoD) Cost Assessment and Program Evaluation (CAPE) office to provide independent validation of the updated cost range estimate provided by LANS [Los Alamos National Security]. In September 2010, the USACE completed a review of the methods and procedures used to develop estimates for CMRR design efforts resulting in improvements for transparency in the provided estimate. These improvements are applicable to the overall project estimation effort. The USACE will continue to work with the project team in future reviews. The DoD CAPE office will conduct an independent cost review in FY 2011." *FY 2012 Congressional Budget Request: Office of the Administrator, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors* (DOE/CF-0057), p. 225.

NO SIGNIFICANT JOBS IMPACT

Not even jobs creation is a legitimate justification for CMRR-NF: the facility would not, in fact, increase employment opportunities. As DOE's Final SEIS notes, neither building a new nuclear facility nor the continued use of the existing CMR facility would directly create more than a few hundred temporary construction jobs in the region of influence (ROI): "These small increases would have little or no noticeable impact on the socioeconomic conditions of the ROI."¹⁰²

CMRR-NF, although a DOE project, is part of the nuclear weapons complex, which is considered a subset of "National Defense" outlays.¹⁰³ Defense spending generally does not create as many jobs as spending in other sectors. For instance, a 2009 University of Massachusetts report found that \$1 billion in military spending would create only 11,600 jobs, while the same investment would create 19,600 jobs in health care or 29,100 jobs in education.¹⁰⁴

NUCLEAR FACILITY DOESN'T FIT INTO BUDGET OR U.S. NUCLEAR STRATEGY

With the U.S. deficit growing and agencies having to make cuts to programs, the construction of a multi-billion-dollar facility with no clear justification is an irresponsible use of taxpayer money. Recently, both the Senate and the House appropriations committees expressed concerns about the cost of CMRR-NF in light of the budget deficit.

In the June 2011 report on the House Energy and Water Development Appropriations Bill, Representative Rodney Frelinghuysen (R-NJ) said:

While the importance of modernization is understood, the economic crisis requires that the NNSA proceed with its modernization activities in a responsible manner and the Committee is seriously concerned with the recent cost growth reported for construction of the Uranium Processing Facility (UPF) and the Chemistry and Metallurgy Research Replacement (CMRR) Project.¹⁰⁵

In the Senate's September 2011 report on the Energy and Water Development Appropriations Bill, Senator Dianne Feinstein (D-CA) echoed those sentiments, saying of CMRR-NF and UPF, "The Committee is concerned about the escalating costs for two new nuclear facilities to handle plutonium and uranium."¹⁰⁶ Ultimately, under the National Defense Authorization Act for FY 2012,

¹⁰² *Final Supplemental Environmental Impact Statement for the Nuclear Facility Portion of the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, New Mexico*, pp. 4-54.

¹⁰³ Office of Management and Budget, *Historical Tables: Budget of the U.S. Government*, Fiscal Year 2012. <http://www.whitehouse.gov/sites/default/files/omb/budget/fy2012/assets/hist.pdf> (Downloaded January 17, 2012)

¹⁰⁴ Robert Pollin and Heidi Garrett-Peltier, "The U.S. Employment Effects of Military and Domestic Spending Priorities: An Updated Analysis," Political Economic Research Institute, October 2009, p. 5. http://www.peri.umass.edu/fileadmin/pdf/published_study/spending_priorities_PERI.pdf (Downloaded November 7, 2011)

¹⁰⁵ Energy and Water Development Appropriations Bill Report, p.129.

¹⁰⁶ Senate, Energy and Water Development Appropriations Bill, 2012, p. 103.

the House and Senate conference committee sent a strong message about CMRR-NF by appropriating only \$200 million for the project, rather than the \$300 million requested by DOE.¹⁰⁷

Signs now point to decreases in the overall nuclear defense budget. After an interview with Defense Secretary Leon Panetta, *The New York Times* reported in November 2011 that, "...Pentagon strategists were looking at additional cuts in the nuclear arsenal, with an eye toward determining how many warheads the military needed to deter attacks."¹⁰⁸

In his January 2012 strategic guidance to the DoD, President Obama wrote that "*It is possible that our deterrence goals can be achieved with a smaller nuclear force,*" the report emphasized, "which would reduce the number of nuclear weapons in our inventory as well as their role in U.S. national security strategy."¹⁰⁹

The fact that CMRR-NF is counter to current nuclear strategy should have been enough to halt design and construction of the facility some time ago. Now that the U.S. budget is in such dire straits, it only makes sense to cut such an expensive project before more money is wasted.

CONCLUSION

Now is the time to stop the design and construction of CMRR-NF. As mounting cost estimates over the past decade have proven, the cost of this facility is likely to increase significantly before it is completed. And DOE's troubled project management history should not give the Administration or Congress any reason to believe that CMRR-NF will be completed either on time or on budget.

In light of the government's desire to reduce the U.S. deficit, a project of this magnitude that lacks a coherent justification is especially untenable. DOE and NNSA have failed to justify the need for an industrial-scale nuclear facility with a massive plutonium vault, particularly when the United States' demands for pit production have significantly evaporated over recent years and will likely continue to do so. The ratification of New START signifies a drawdown of nuclear weapons and a future that includes a smaller U.S. nuclear arsenal. Experts—many of whom are former nuclear laboratory officials—agree that the scale of CMRR-NF is not aligned with current U.S. nuclear strategy. Rather than forcing taxpayers to bear the financial burden of constructing an expensive nuclear facility with an obsolete mission, the Administration and Congress should eliminate funding for the CMRR-NF immediately.

¹⁰⁷ 112th Congress, House of Representatives, National Defense Authorization Act for Fiscal Year 2012, Conference Report to accompany H.R. 1540, p. 525. <http://www.gpo.gov/fdsys/pkg/CRPT-112hrpt329/pdf/CRPT-112hrpt329-pt1.pdf> (Downloaded January 5, 2012)

¹⁰⁸ Thom Shanker and Elisabeth Bumiller, "Weighing Pentagon Cuts, Panetta Faces Deep Pressures," *The New York Times*, November 6, 2011. <http://www.nytimes.com/2011/11/07/world/panetta-weighs-military-cuts-once-thought-out-of-bounds.html> (Downloaded November 7, 2011)

¹⁰⁹ Department of Defense, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*, January 2012, p. 5. http://www.defense.gov/news/Defense_Strategic_Guidance.pdf (Downloaded January 5, 2012)

RECOMMENDATIONS

- 1) The Administration and DOE should cancel CMRR-NF and zero out funding for the project in the upcoming budget.
- 2) If the Administration and DOE fail to act, Congress should cancel funding for CMRR-NF in its next appropriations bill.
- 3) NNSA should continue using existing facilities, at LANL and elsewhere, in the nuclear weapons complex to meet credible nuclear modernization requirements.
- 4) Congress should amend Section 3114 of the Fiscal Year 2011 National Defense Authorization Act, “Notification of cost overruns for certain Department of Energy projects,” to reflect the stronger provisions in the current Nunn-McCurdy Act in order to improve the oversight of major cost overruns and schedule delays at the DOE.
- 5) Congress should require independent cost estimates of major DOE construction projects at an early milestone in those programs so there is more realism in estimating the costs of those projects.

ACRONYMS AND GLOSSARY

CMR	Chemistry and Metallurgy Research facility
CMRR	Chemistry and Metallurgy Research Replacement facility
CMRR-NF	Chemistry and Metallurgy Research Replacement – Nuclear Facility
CRS	Congressional Research Service
DAF	Device Assembly Facility
DNFSB	Defense Nuclear Facility Safety Board
DoD	Department of Defense
DOE	Department of Energy
EIS	Environmental Impact Statement
EM	Department of Energy’s Office of Environmental Management
GAO	Government Accountability Office
LANL	Los Alamos National Laboratory
LEP	Life Extension Program
MOX	Mixed Oxide Fuel Fabrication Facility
MPF	Modern Pit Facility
NEPA	National Environmental Policy Act
New START	New Strategic Arms Reduction Treaty (2010)
NNSA	National Nuclear Security Administration
NPR	Nuclear Posture Review
PF-4	Plutonium Facility 4
RLUOB	Radiological Laboratory/Utility/Office Building
ROI	Region of Influence
SEIS	Supplemental Environmental Impact Statement
START I	Strategic Arms Reduction Treaty (1991)
UPF	Uranium Processing Facility

Chemistry and Metallurgy Research facility – The Chemistry and Metallurgy Research is a Los Alamos National Laboratory facility that was built in 1952. The primary function of the building is analytical chemistry and metallurgical research of plutonium and uranium.

Chemistry and Metallurgy Research Replacement facility – The Chemistry and Metallurgy Research Replacement is a Department of Energy/National Nuclear Security Administration project at the Los Alamos National Laboratory. It is comprised of two buildings: the completed Radiological Laboratory/Utility/Office Building and the proposed Nuclear Facility.

Chemistry and Metallurgy Research Replacement – Nuclear Facility – One of two facilities at the Chemistry and Metallurgy Research Replacement project at Los Alamos National Laboratory. The Nuclear Facility would provide laboratory space for nuclear research and storage for special nuclear materials.

Device Assembly Facility – Located at the Nevada National Security Site, the Device Assembly Facility was originally intended to be a site for assembling nuclear test devices. It now supports activities from other laboratories such as Los Alamos National Laboratory.

Design-build – A construction strategy often used in Department of Energy projects in which the same contractor oversees both design and construction.

JASON – A highly respected, independent group of scientists that advises the U.S. government on matters of science and technology.

Los Alamos National Laboratory – A nuclear weapons facility located in Los Alamos, New Mexico, that is considered the birthplace of the thermonuclear bomb, and is managed by Bechtel Corporation, University of California, Babcock & Wilcox Company, and Washington Group International.

Life Extension Program – According to the National Nuclear Security Administration, the Life Extension Program is “a systematic approach that consists of a coordinated effort by the design laboratories and production facilities to: 1) determine which components will need refurbishing to extend each weapon’s life; 2) design and produce the necessary refurbished components; 3) install the components in the weapons; and 4) certify that the changes do not adversely affect the safety and reliability of the weapon.”

Mixed Oxide Fuel Fabrication Facility – Located at the Department of Energy’s Savannah River Site, the MOX facility will blend surplus weapon-grade plutonium with depleted uranium oxide to make mixed oxide fuel for use in existing nuclear power plants.

National Nuclear Security Administration – The semiautonomous agency within the Department of Energy responsible for oversight of the U.S. nuclear stockpile.

Nevada National Security Site – Formerly known as the Nevada Test Site, the Nevada National Security Site's primary mission is to support the nuclear stockpile.

New START – The arms control treaty with Russia to reduce the number of deployed strategic warheads to 1,550 for each side.

Nunn-McCurdy Act – A provision in the 1983 Department of Defense Authorization Act, the Nunn-McCurdy Act requires the Department of Defense to report to Congress whenever a major defense acquisition program experiences cost overruns that exceed certain thresholds.

Plutonium Facility 4 – A nuclear facility located in Technical Area 55 at Los Alamos National Laboratory. Plutonium Facility 4 supports plutonium manufacturing, stockpile surveillance, plutonium disposition, plutonium heat source fabrication for deep-space NASA missions, and a variety of nuclear materials research and development programs.

Plutonium pit – Also known as a trigger, the pit is the core of a thermonuclear weapon that, when compressed, reaches a critical mass and begins a sustained nuclear fission chain reaction.

Plutonium trigger – See Plutonium pit.

Radiological Laboratory/Utility/Office Building – A facility within the Chemistry and Metallurgy Replacement Project that will house radiological laboratory space, offices, a utilities and services building for the entire CMRR complex, and training facilities and classrooms.

Sandia National Laboratories – Department of Energy research and development laboratories whose primary mission is ensuring the U.S. nuclear arsenal is safe, secure, and reliable.

Stockpile surveillance – A National Nuclear Security Administration program to ensure that weapon systems function as expected and defects due to handling, aging, manufacturing, or design are detected.

Uranium Processing Facility – A proposed facility at the Department of Energy's Y-12 National Security Complex in Oak Ridge, Tennessee.