Mello aff 3, par 4, ref 1

CHEMISTRY & METALLURGY RESEARCH REPLACEMENT

CMRR Public Meeting, September 19, 2006

Volume 2

Los Alamos National Laboratory
Los Alamos, New Mexico

Los Alamos NATIONAL LABORATORY EST. 1943

NNSA

LA-UR-07-0684

[STEVE FONG] And then we had general comments that we equally shared. So, with that I'm going to pass over this laser, this advancer, to Tim Nelson.

[Slide 7]
[TIM NELSON] I'm gonna give you the background on the project for those people that weren't here last time. And then we'll give updates on where we're at and how things are going and a variety of other topics, bring you up to speed.

[TIM NELSON] One of the things that came up in the last meeting was the difference between what we're supporting in terms of capabilities with the buildings for CMR replacement relative to the programs that are going on. And probably a good example of that, if you looked at one of the handouts that we had from the groundbreaking ceremony, it said that we're supporting pit manufacturing. And the question that came up was "Well is that pit manufacturing in the context of actually making pits in the CMR replacement building or is it some support activities related to making pits. And it's actually the support activities of analytical chemistry and materials characterization and actinide research and development. So I'll once in a while use ACMC, which is analytical chemistry and materials characterization, and R&D is research and development.

[TIM NELSON] But, bottom line is, relative to replacing the existing CMR building which was built in 1952, it's an aged facility. There was a study done in around the '98 time period to look at how we would upgrade the existing building and whether or not we could continue to operate it safely over a long time period; and the decision at that time was that we would plan an end-of-life of that building around 2010. And through a series of other documents, including the CMRR environmental impact statement, determined that we would build a new building, or new sets of buildings, which is the CMR replacement project and replace those capabilities that are provided by the existing CMR Building. And those would be analytical chemistry and materials characterization and actinide research and development.

[Pause]
[TIM NELSON] The "L" button.

[Inaudible speech while projector is being adjusted.]

[Slide 8]
[TIM NELSON] Thanks Ed. So the project is split into three phases. Um, the first phase, which is under construction right now, and David Weatherbie, who is in the audience, actually represents Austin Commercial, which is the contractor doing this construction of the Radiological Laboratory Utility Office Building. And a good way to look at this building is, it's actually a support building for the major building of the nuclear facility. Um, the Radiological Laboratory Utility Office Building provides utilities, provides a radiological laboratory space of about 20,000 square feet, provides office space, um, a variety of other functions including training facilities for the TA-55 site. TA-55 site is where these buildings are gonna be located at the Laboratory.

Mello aff 3, par 6, ref 2a

04-D-125, Chemistry and Metallurgy Research Facility Replacement, Los Alamos National Laboratory Los Alamos, New Mexico

The Total Estimated Cost for design of the Chemistry and Metallurgy Research Facility Replacement (CMRR) project has been decreased by $40,500,000 from the original Project Engineering and Design (PED) estimate (03-D-103) due to a revised acquisition strategy, whereby a design-build approach will be utilized. Under this approach, the design funding decrement has been moved out of PED and is requested within the construction part of this line item project.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 2004 Budget Request *(Preliminary Estimate)*.	1Q 2004	3Q 2006	2Q 2004 [a]	1Q 2011	500,000 [b]	600,000

[a] Physical Construction Start: 2Q 2004 for light lab/office buildings and 3Q 2006 for Hazard Category II and III/IV buildings.

[b] The TEC includes the cost of design activities ($14,500,000) appropriated in 03-D-103, Project Engineering and Design (PED) to support design-build acqusition. This is a preliminary baseline estimate. The performance baseline will be established following completion of preliminary design and Critical Decision 2.

Project Engineering and Design funding provided in FY 2003 ($10,000,000) and FY 2004 ($4,500,000) will be used for preliminary design activities for both the Light Laboratory/Office Building and Nuclear Laboratory(s) elements of the project. FY 2004 construction funding requested in this line item will be used for initiation of design and construction for the light laboratory/office building component of CMRR and initiation of design activities for nuclear laboratory(s).

Scope

The scope for this project was developed through joint LANL/NNSA Integrated Nuclear Planning (INP) activities and workshops. The major CMRR scope elements resulting from INP activities are:

- Relocate existing CMR analytical chemistry and material characterization (AC/MC) capabilities at LANL.
- Special nuclear material storage for CMR AC/MC working inventory and overflow capacity for PF-4.

In addition to these two major elements, the following elements will be evaluated during conceptual design through the completion of option studies:

- Contingency space to accommodate future mission requirements.
- Large vessel containment and processing capabilities.
- Non-LANL user space requirements.
- Consolidation of LANL PF-4 AC/MC capabilities.

Net space requirements for the above listed scope elements within CMRR were developed through a LANL/NNSA INP workshop conducted in July 2001. The following space requirements were identified:

- 60,000 gross square feet of Hazard Category II space for AC/MC, large vessel containment and processing, material storage, and contingency space.
- 60,000 gross square feet of Hazard Category III/IV space for AC/MC and contingency space.
- 90,000 gross square feet for a light laboratory/office building.

Project Milestones

Light Lab/Office Building (design-build)

FY 2004	Initiate Design	1Q
FY 2004	Initiate Construction	2Q

Nuclear Laboratory(s)

FY 2004	Complete Conceptual Design	4Q
FY 2005	Complete Title I – Preliminary Design	1Q
FY 2006	Complete Title II – Final Design	3Q
FY 2011	Complete Title III – Construction	1Q
FY 2012	Complete Transition/Closeout	1Q

Mello aff 3, par 6, ref 2b

7. Schedule of Total Project Costs

(dollars in thousands)

		Prior Years	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Outyears	Total
FY 2005	TEC	159,130								159,130
RLOUB	OPC	4,068	802							4,870
Baseline	TPC	163,198	802	0	0	0	0	0	0	164,000
FY 2009	TEC	38,100	40,000	59,000	15,800					152,900
REI	OPC	5,602	11,900	12,100	12,400	4,498				46,500
Baseline	TPC	43,702	51,900	71,100	28,200	4,498	0	0	0	199,400
	TEC	159,130								159,130
FY 2010	OPC	4,068	802							4,870
RLOUB	TPC	163,198	802	0	0	0	0	0	0	164,000
	TEC	38,100	40,000	59,000	15,800					152,900
FY 2010	OPC	5,602	11,900	12,100	12,400	4,498				46,500
REI	TPC	43,702	51,900	71,100	28,200	4,498	0	0	0	199,400
	TEC	131,600	57,500	129,000	289,200	300,000	300,000	300,000	1,504,631	3,011,931
FY 2010	OPC	34,481	2,000	2,500	3,000	3,500	4,000	4,550	300,500	354,531
NF	TPC	166,081	59,500	131,500	292,200	303,500	304,000	304,550	1,805,131	3,366,462
	TEC	159,130								159,130
FY 2011	OPC	4,068	802							4,870
RLOUB	TPC	163,198	802	0	0	0	0	0	0	164,000
	TEC	38,100	40,000	59,000	15,800					152,900
FY 2011	OPC	5,602	11,900	12,100	12,400	4,498				46,500
REI	TPC	43,702	51,900	71,100	28,200	4,498	0	0	0	199,400
	TEC	131,600	57,500	166,000	289,200	300,000	300,000	300,000	1,532,769	3,077,069
FY 2011	OPC	34,481	2,000	2,500	3,000	3,500	4,000	4,550	300,500	354,531
NF	TPC	166,081	59,500	168,500	292,200	303,500	304,000	304,550	1,833,269	3,431,600

Note: NF data above are pre-baseline planning figures

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4QFY2009[a]
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	2QFY2065

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total, Operations & Maintenance	N/A	N/A	N/A	N/A

[a] This date corresponds to the beneficial occupancy of the RLUOB construction phase only. NF date is TBD.

9. Required D&D Information

As directed by the DOE Acquisition Executive at CMRR CD-0, NNSA and LANL developed a pre-conceptual cost and schedule range for the D&D requirements of the existing CMR Building located at TA-3 during the CMRR conceptual design. The initial pre-conceptual cost estimate range for D&D of the CMR Building is approximately $200,000,000 - $350,000,000 (un-escalated FY 2004 dollars) with an associated schedule estimate range of 4-5 years. This information was presented as part of CMRR CD-1 per Secretarial direction issued at CD-0.

During the 3rd Quarter of FY 2005, the D&D of the existing CMR facility received CD-0 in conjunction with CMRR CD-1 approval. Current Future Years Nuclear Security Program/Integrated Construction Program Plan (FYNSP/ICPP) funding profiles do not include the funding for the D&D of the CMR Facility. NNSA will not initiate CMR D&D activities until completion and operational start-up of the CMRR Nuclear Facility, currently projected to be operational well after the FYNSP budget planning window. As such, budget formulation for CMR D&D is premature for the FY 2011 budget submission. The inclusion of the D&D CMR Facility budget will occur upon the establishment of a project number and update of the FYNSP/ICPP in out year budget cycles.

The CMR D&D commitment is reflected in this CPDS for completeness. However, as planning for this D&D activity matures, NNSA may elect to enable this effort as a separate project, execute it as an element of a wider project or program for a portfolio of D&D activities at LANL, or bundle it with other, yet undefined activities.

Area	Gross Square Feet (gsf)
TA-55-400 (Radiological Laboratory & Office Building) TA-55-440 (Central Utility Building)	187,127 20,998
TA-55-500 (Security Category I/Hazard Category II Nuclear Facility)	406,000 (beneficial occupancy post FY 2018)
TA-3, Building 29 (CMR)	(571,458)
LANL "banked excess" necessary to offset one-for-one requirement	42,667

Name and site location of existing facility to be replaced: CMR (TA-3, Building 29)

When originally conceptualized, the replacement facilities for CMR, the RLUOB and NF, were thought to result in a significantly smaller space than the CMR facilities being replaced. However, owing to needs to meet modern health, waste, safety, and security functions, the combined space for CMRR is now expected to exceed the space for CMR.

CMRR has incorporated the NNSA Fiscal Year Banking of Excess Facilities Elimination, New Construction and Net Banked Square Footage reporting process that documents, through the DOE Facilities Information Management System (FIMS), the data associated with new construction added by the RLUOB and the NF. The new construction square footage is accounted for once beneficial occupancy is received and is subsequently offset with LANL "banked excess" additional D&D space to meet the "one-for-one" requirement within the FY 2002 Energy and Water and Water Development Appropriations Bill conference report (107-258). Given planned new construction (including CMRR) at LANL and planned excess facility reductions, the excess program is projecting it will have banked well

8. Project Description, Justification and Scope

Project currently on hold awaiting DOE and LANL assessment of project management deficiencies and Phase 1 cost overruns. Impact to current preliminary baselines have not yet been determined.

Ongoing programmatic reviews and incorporation of corrective actions and lessons learned from Phase 1 Assessments will be utilized to ensure that required upgrades will be completed within current TEC of $174,100,000.

The Chemistry and Metallurgy Research (CMR) Building is the largest structure at the Los Alamos National Laboratory (550,000 square feet). Construction of the CMR Building was completed in 1952. Most of the major mechanical and electrical equipment has reached the end of its design life.

Since its construction over 40 years ago, the CMR Building has been used for research, development, and analytical work with plutonium, uranium and their alloys, and other materials in support of weapons, nuclear materials, and other Laboratory programs. This work continues to be essential to the nation's weapons program, with the principal activities in the building being in support of the plutonium research, development, and demonstration activities conducted at the Laboratory's Plutonium Handling Facility at TA-55. The activities that are critical to these plutonium operations are:

- Essential daily analytical chemistry and metallurgical services on plutonium and other actinides.
  - Analyses of plutonium metal preparations for the Laboratory's Weapons Research, Development, and Test Programs.
  - Analyses required for development and demonstration of new and improved processing methods for scrap recovery.
  - Analyses required for accountability and verification of material received or shipped and for on-site transfers.
- The CMR Building future role is also essential for support of several major Defense Programs areas which include:
  - Enhanced Safety and Reliability of Nuclear Weapons
  - Lead Technical Laboratory for Pu and U Processing
  - Weapons Dismantlement and Component Storage

8. Project Description, Justification and Scope: (Continued)

The primary purpose of this project is to upgrade facility systems and infrastructure that have been in continuous operation for over 40 years and are near the end of their useful life. Such upgrading will ensure the continued safety of the public and Laboratory employees and increase the operational safety, reliability and security of essential activities. Increased safety, reliability, and security are critical to the continued operation of the Laboratory's Stockpile Management Programs and other national defense programs.

The Special Nuclear Materials Laboratory (SNML) Project was authorized (88-D-105) to replace the CMR Building at Los Alamos National Laboratory. In FY 1990, the project was put on hold pending a substantive review of the project including other potential options for providing the necessary specialized Laboratory space. As the planned completion date of the SNML continued to be pushed back, it became necessary to provide interim upgrades to CMR to allow its safe and reliable use in the interim period; $6,250,000 was reprogrammed (91-R-14, executed in FY 1992) from the SNML line item to Project 90-D-102, Nuclear Weapons Research, Development and Testing Facilities Revitalization, Phase 3 (WRD&T Revit., 3), subproject CMR Upgrades (Phase 1). Later in FY 1991, it was decided not to proceed with the construction of SNML but provide interim upgrades, to CMR (Phase 1) and to identify further upgrades based on safety and risk assessment, for continued long-term operations. The result of these safety and risk assessments is an Interim Safety Analysis Report (ISAR). The findings of the ISAR are the basis for the scope of CMR Upgrades Phase 2, which was combined with Phase 1 to produce this stand alone line item in FY 1995.

The ISAR includes an analysis of risks associated with natural phenomena design basis accidents, current operations, and comparison to DOE Design criteria (6430.1A). The ISAR was utilized as the basis to identify and prioritize upgrades that would be required to continue operations in a safe, secure, and reliable manner for at least the next 20 years.

DOE/EA-1101

Mello aff 3, par 7, ref 4

ENVIRONMENTAL ASSESSMENT for the PROPOSED CMR BUILDING UPGRADES at the LOS ALAMOS NATIONAL LABORATORY LOS ALAMOS, NEW MEXICO

Date Prepared: February 4, 1997
Prepared by: U.S. Department of Energy
Los Alamos Area Office

Relocating CMR Building operations to an existing building at LANL or another site within the DOE complex are additional alternatives. No building, without mission commitments, sufficient size, and necessary environmental protection systems, was available at LANL. Locating operations at a site away from LANL plutonium-processing facilities would increase risks to the public. The additional operational costs, technical issues, and schedule effects would result in programmatic inefficiencies not considered reasonable. This alternative was not considered reasonable, and was not developed further.

Two CMR Building wings are not required for current missions. Proposed uses for the two, inactive wings have not been decided upon, so analysis of the environmental effects of their use is premature. Because of the unique capabilities of the CMR Building, DOE has no current plans to decommission any portion. For this reason, this alternative was not considered reasonable and was not developed further.

The volume of low-level solid[a] radioactive waste would increase during CMR Building upgrades due to the removal of construction waste. Waste minimization techniques would be used to reduce waste volume and waste management costs. A small amount of transuranic (TRU) waste might be generated. Radiation risks to workers and the public would not be significantly increased, however, the increased construction workforce could be subject to additional worker injuries/deaths associated with collapse of the building due to an earthquake. Transportation risks would increase as waste is sent to the Technical Area (TA) 54 disposal area, or off-site, but the likelihood of an accident would be very low.

The cumulative effects of the Proposed Action would be to enhance CMR Building environmental health and safety operating parameters, thereby reducing effects on the environment from its continued use.

[a] Use of the term "solid" refers to the solid state of matter not the Resource Conservation and Recovery Act (RCRA) regulatory definition.

- Wing 1 upgrades, Heating, Ventilation, and Air Conditioning (HVAC) system/Wing 1 interim decontamination,
- operations center upgrade,
- chilled water upgrade: Wings 3, 5, and 7,
- main vault, Continuous Air Monitors (CAM) and dampers,
- acid vents and drains: Wings 3, 5, and 7,
- fire protection upgrades,
- operations center standby power,
- exhaust duct washdown recycling system: Wings 3, 5, and 7, and
- Wings 2 and 4 safe standby.

Figure 2-4 shows the locations of proposed upgrades. The majority would be performed inside the CMR Building. Some construction activities would occur outside of the building, but within the fenced CMR Facility perimeter. Exterior activities would involve construction of a new cooling tower and one-story chilled-water plant to service HVAC requirements, a new pre-engineered metal building to house standby power generators and associated support equipment, a new one-story filter tower addition to service Wing 3, and installation of concrete columns and steel buttresses around the exterior of the facility for seismic upgrading. Proposed construction activities would disturb a total area of less than 0.4 hectare (one acre). As appropriate, LANL would apply dust suppression and storm water run-off controls in accordance with best management practices during exterior construction activities. Each proposed upgrade is described in further detail in sections 2.2.1.1 through 2.2.1.14. Additional information concerning the details of the proposed upgrades can be found in the CDR (LANL 1995a).

The DOE considered whether or not to upgrade the mostly inactive Wings 2 and 4 of the CMR Building as part of the Proposed Action. DOE has no current programmatic needs to perform analytical chemistry operations in Wings 2 and 4; therefore, upgrading Wings 2 and 4 is not part of this proposal.

Decontamination and decommissioning of the structure would be performed at the end of the useful life of the CMR Building. A separate NEPA analysis will be required at that time.

2.2.1 Description of the Proposed Upgrades

<u>General</u>

The proposed upgrades would involve activities normally associated with construction projects involving modifications to an existing structure. Some specific activities would include: minor demolition; repair and reconfiguration of interior architectural systems (walls, ceilings, floors); removal and/or replacement of existing equipment and mechanical systems; installation of new equipment and mechanical systems; excavation and backfilling around building foundations; reinforced concrete and masonry placement; underground electrical system installation; interior

Mello aff 3, par 8, ref 5

Bingaman Seeks Funds For Design of Weapons Facility

4/15/1999

By Ian Hoffman
Journal Staff Writer

Sen. Jeff Bingaman is pressing for design of the nation's first new plutonium- and weapons-research facility in more than 20 years.

Bingaman, D-N.M., is seeking $5 million in year 2000 defense funds to design a replacement for Los Alamos National Laboratory's troubled Chemistry and Metallurgical Research building.

Nuclear-disarmament advocates are likely to mount vigorous opposition. They argue a new weapons lab for Los Alamos is just as unnecessary now in the wake of the Cold War as in 1990, when Congress killed lab plans for a $385 million Special Nuclear Materials Laboratory.

"It's like a horror movie: It keeps coming back," said Greg Mello, head of the Santa Fe-based Los Alamos Study Group. "There's nev-

See **BINGAMAN** *on* **PAGE 3**

Bingaman Seeks Funds for Design of Weapons Facility

from **PAGE 1**

er a stake through the heart. When will we wake from the 'Night of the Living Dead' ideas?"

So far, the lab's owners at the U.S. Department of Energy are undecided on seeking a new nuclear-weapons lab for Los Alamos and plan to study the issue for another year. Meanwhile, the DOE plans to continue spending $125 million to keep the CMR, as the building is called, running through 2010.

Inside CMR, scientists and engineers work on nuclear-weapons parts, as well as perform tests for the lab's environmental and cleanup programs. At times, CMR has hosted high-level nuclear waste, tests on nerve gases and a variety of other defense projects.

"There are problems with that building," said Bingaman spokeswoman Kristen Ludecke. "It's not an emergency, but it's a question of whether it would be cost-effective to build a new facility."

With the $5 million, engineers and architects could begin sketching out a rough size and design for the new lab, she said.

"This would not be a Taj Mahal but a scaled-down, streamlined facility that would meet the needs of the lab at a lower cost than they are met now," Ludecke said.

The 1950s-vintage CMR, once the largest building in New Mexico, is a massive holdover of the Cold War that has frustrated efforts to extend its working life. Besides outdated systems — electricity, fire and ventilation — CMR is more contaminated than lab managers once thought. Renovations in 1996 and 1997 ran at least $15 million overbudget and, combined with unsafe building operations, caused lab managers to shut down work at CMR for months.

Last year, geologists found yet another problem: An earthquake fault lies under a third of the building.

Officials of the Defense Nuclear Facilities Safety Board, an oversight agency for the nuclear-weapons complex, say the U.S. Department of Energy should find a new place for its work with weapons-grade plutonium and uranium at the CMR building.

Energy Department and Los Alamos executives say CMR's primary work — analytical chemistry on nuclear-weapons materials — is a unique function that must be replaced.

Critics such as Mello counter that CMR is mostly empty, a building in search of work to justify its existence.

"We've never seen what is going on in the CMR building that needs to be replaced. It's a collection of empty space and projects that don't need to be there," he charges.

Before building a new weapons lab, Mello said, the government should evaluate its current plutonium facilities as well as new ones proposed for Savannah River Site.

In 1990, Bingaman actually had a hand in the demise of LANL's Special Nuclear Materials Laboratory. He wrote a bill amendment requiring the DOE first to report on its need and supply of nuclear materials labs. The DOE never submitted its report, and a House-Senate conference committee killed funds for the Los Alamos project.

"There's a lot of uncertainty because we don't know what the Energy Department's overall approach to plutonium processing is," Bingaman said at the time.

By then, the Energy Department and Los Alamos had 100 people working on the project and already had spent $32 million. Ludecke said Bingaman isn't necessarily committed to building the new lab but wants to "begin the conversation."

"It doesn't lock us into building a new structure," she said. "It shouldn't be taboo to talk about a new building. If the current structure is continuing to deteriorate and cost a great deal to repair, we should be able to examine whether a new building makes sense."

$5 million requested for new LANL complex

4/15/1999

By BARBARA FERRY
The New Mexican

Researchers at the complex do chemical studies on plutonium, uranium and other radioactive materials.

Sen. Jeff Bingaman is seeking federal money to replace a problem-plagued research facility at Los Alamos National Laboratory that sits atop an earthquake fault.

Bingaman, D-New Mexico, has requested $5 million to begin designing a replacement for the Chemistry and Metallurgy Research Building, a 550,000-square-foot research complex which was built in the early 1950s.

Researchers at the complex do chemical studies on plutonium, uranium and other radioactive materials. The building, which employs 350 people, was shut down twice in 1997 because of safety problems.

Money for a new building is not included in President Clinton's budget request, an aide to Bingaman said.

"This is something Sen. Bingaman has decided to push for," said spokeswoman Jude McCartin. "The (CMR) Building is old. It doesn't have proper ventilation. We can continue to make upgrades, but eventually the long-term answer is to get a new building."

She said there have been no estimates of how much a new building would cost, though a DOE official estimated the price would be at least $500 million.

LANL spokesman Jim Danneskiold said the laboratory has "no plans, no drawings for a new building." He referred all other questions about the budget request to the Department of Energy. Al Stotts, a spokesman for the DOE in Albuquerque said the department plans to decide this year what to do with the building.

A Santa Fe disarmament activist said the lab wants to expand its capacity to produce plutonium "pits," or triggers for

Please see LANL, Page B-4

LANL

Continued from Page B-1

nuclear weapons.

"The seismic and other issues surrounding the CMR building provide a public-relations opportunity but not a reason for a new facility," said Greg Mello of the Los Alamos Study Group, who asked, "Why is it that the public is continually asked to fund expansions of nuclear programs or new nuclear facilities under the guise of increasing 'safety?' "

Current DOE plans call for the lab to have the capacity to produce 50 plutonium pits a year by 2005. The CMR building is one of the facilities planned to be used for pit production.

Bruce Hall of Peace Action, a disarmament group headquartered in Washington, D.C., said activists would fight any attempt to spend public money on a new nuclear-production facility at LANL.

"It's pure pork for the lab," Hall said. "With the Cold War over, we have to question why we need to spend more money on nuclear weapons."

In 1980s, a proposal to build a $450 million Special Nuclear Materials Laboratory at LANL sparked community opposition. In 1990, Congress rejected the plan as too expensive.

Safety concerns — including worker accidents — including an explosion that caused $100,000 in damage, safety violations and defects in the complex's fire alarm and ventilation systems led Los Alamos officials to halt work at the CMR building twice. Among other concerns, a federal oversight board, along with lab critics — fear that a catastrophic accident such as a fire could release plutonium into the atmosphere.

DOE already has spent about $62 million on safety upgrades at the building. Renovations were temporarily halted by DOE in 1997 after cost overruns for the first phase of the project reached $15 million. A senior DOE official blamed the overruns on "weak management and poor design effort."

DOE's Stotts said the renovations have resumed and are expected to keep the building running until 2010.

But renovations were further complicated by geologists' discovery of a seismic fault underneath last spring. The 45-year-old building is too old for seismic upgrades, lab officials said in a report.

Mello aff 3, par 9, ref 6

95-D-102, CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

None.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	Title I & II A-E Work Initiated	Title I & II A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1995 Budget Request [a]	1Q 1992	1Q 1997	3Q 1993	4Q 2003	194,750	204,000
FY 1996 Budget Request	1Q 1992	1Q 1997	3Q 1993	4Q 2004	194,750	204,000
FY 1997 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 1998 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 1999 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 2000 Budget Request *(Current Baseline Estimate)*	1Q 1992	1Q 1999 [b]	3Q 1993	4Q 2004 [c]	174,100 [c d]	223,635

[a] Prior to FY 1995, CMR Upgrades Phase 1 was a subproject within Nuclear Weapons Research Development and Testing Facilities Revitalization, Phase III (90-D-102). In FY 1995, Phase 1 was segregated and the scope of Phases 2 and 3 were added to create this stand alone line item.

[b] Title I activities have been completed for all Phase 1 subprojects. Phase 2 subproject Title I activities were ongoing when the project was placed on hold, and Title I baselines have not been established.

[c] Project has been restarted to address safety and reliability requirements as an outcome of the facility; Basis for Interim Operations (BIO) Review and Associated Technical Safety Requirements (TSRs).

[d] Phase 2 CDR baseline estimate.

Mello aff 3, par 10, ref 7

Initiatives for Consolidation of Secure Facilities

- Integrated Nuclear Planning (INP). INP provides a framework for physical consolidation of facilities that handle and support the processing of actinide materials for stockpile stewardship and limited pit manufacturing and assembly.

  The plan proposes the location of principal capability facilities based on functional adjacencies and locations for various other support operations. Central to the plan is the removal by 2010 of nuclear operations now located in the CMR building and relocation of TA-18 operations. Supporting facilities and infrastructure will be incorporated into the plan.

  This planning effort will be completed in August 2001.

- TA-18 Relocation. Relocating TA-18 (Critical Experimentation) is being considered because of facility age, the increased requirements for physical security, and the higher costs to maintain the aged facilities.

  The missions conducted at TA-18 help ensure that national capabilities in the areas of nuclear materials management, criticality safety, emergency response, nonproliferation and safeguards, arms control, waste assay, instrumentation development, and nuclear weapons stockpile stewardship science are preserved. TA-18 is the sole facility in the United States capable of performing general purpose nuclear materials handling experiments and training that includes the assembly and operation of criticality devices.

  Relocation of TA-18 facilities to TA-55 would accomplish primary physical security goals of consolidating secure functions, limiting public access and visibility of secure activities, and reducing public proximity to secure areas.

- CMR Replacement. A new facility is proposed to replace some of the current capabilities housed in the CMR building and to replace nuclear space for the DP mission. The CMR replacement project is currently going through the process of receiving Critical Decision 0 approval. The initial work on a mission need statement was done in 2000.

  The Laboratory proposes development of a project with the following scope and deliverables:

  1. A replacement capability for Analytical Chemistry and Materials Characterization (AC/MC) consistent with the capabilities currently in place at the CMR facility that support the assigned DOE missions.
  2. Additional required capabilities, including materials processing capabilities in support of the Hydrodynamic Testing program and other materials science initiatives.

  The CMR replacement facility may be located at TA-55.

Mello aff 3, par 10, ref 8

Alternatives/Options	*Facility Strategies*	*Related Projects*
Facility Upgrades to TA-55. Facility upgrades include refurbishment of existing facilities for plutonium component manufacturing and construction of new space. Additional capabilities include a high energy x-radiography capability and other complimentary NDE techniques as well as cold support laboratory space and changing rooms and offices.	Prepare Pajarito Corridor West Area Master Plan to establish program space requirements and identify suitable sites for facility upgrades.	
Replacement of CMR building functions commensurate with support to future DOE program missions.	Define the requirements of the replacement facility, including location and floor space. Facility should be sized to support all Laboratory analytical chemistry needs (e.g., waste mgmt, non-nuclear components, etc.) Design, build, and operate as a nuclear Cat III, or less, facility. Identify the reuse potential for CMR building. Absent a suitable reuse, estimate cost for D&D and removal.	CMR replacement
Upgraded Sigma building or a new facility to support non-nuclear component manufacturing. A new facility, the Non-nuclear Pit Component Facility (NPCF) has been proposed for construction adjacent to the Sigma building. This facility will include aspects of SM-39, the Laboratory machine shop, and manufacturing capabilities commensurate with limited WR pit production. Potential reuse of the Antares Hall and surrounding facilities at TA-35 for potential manufacturing facilities.	Identify the location, space, and capability requirements for the new NPCF. Determine the affect of new construction on necessary ongoing operations in existing facilities. Can existing buildings at TA-35 currently used for Atlas be reconfigured for NPCF?	
Consolidation of TA-21 capabilities to WETF.	Establish relocation space for TA-21 functions to WETF and define the cost for D&D and removal of TA-21 buildings. Transfer of capability from TA-21 to building 16-450, an addition to the WETF facility. Installation of a third NTT loader in building 450. Reconfigure the basement of building 450 for R&D space.	WETF - roof upgrades **TSE office building**

Mello aff 3, par 10, ref 9

CHEMISTRY
METALLURGY
RESEARCH
REPLACEMENT

CMRR Public Meeting, September 23, 2009

Volume 8

Los Alamos National Laboratory
Los Alamos, New Mexico

Los Alamos NATIONAL LABORATORY EST. 1943

NNSA National Nuclear Security Administration

LA-UR 10-00676

[RICK HOLMES]
Most of the work in the, in this building is analytical chemistry.

[KEN LAGATUTTA]
Uh huh.

[RICK HOLMES]
And a max of 8.4 grams of plutonium.

[KEN LAGATUTTA]
A max of 8.4?

[RICK HOLMES]
In the whole building.

[KEN LAGATUTTA]
Okay. And then the nuclear facility which is still to be built, they'll be using larger quantities of the same material? Or somewhat different material?

[RICK HOLMES]
It'll be sometimes different material because material, material characterization will also go on in the nuclear facility.

[KEN LAGATUTTA]
Unh huh.

[RICK HOLMES]
And it also has a vault. And the vault holds—

[KEN LAGATUTTA]
How much—

[RICK HOLMES]
And the vault can store six metric tons

[KEN LAGATUTTA]
And will they have hot cells in the rad lab?

[RICK HOLMES]
No hot cells in the rad lab. Nor in the nuke facility.

[KEN LAGATUTTA]
Really? And no plans for any hot cells?

[RICK HOLMES]
No plans for any.

Mello aff 3, par 10, ref 10

Can Los Alamos Meet Its Future Nuclear Challenges?

Balancing the Need to Expand Capabilities While Reducing Capacity

Editor's note: Tim George is head of the Nuclear Materials Technology (NMT) Division. In this, his first editorial for Actinide Research Quarterly, he discusses some of the challenges facing the division.

NMT Division Director Tim George.

Since the early 1980s, the vast array of Department of Energy (DOE) facilities once devoted to the study and use of actinide materials has undergone a dramatic restructuring. Sites such as Mound, Ohio; Pinellas, Fla.; Hanford, Wash.; and Rocky Flats, Colo., which once formed the backbone of the nation�s weapons complex, have either closed outright or exchanged well-defined production and support missions for goals of decontamination and decommissioning.

DOE's remaining active sites are handicapped in the near term by deteriorating nuclear and high-hazard facilities, and infrastructure budgets that in most cases are inadequate to address a half-century of accumulated liabilities.

Although also burdened with its share of aging facilities, Los Alamos is unique in that it continues to operate the nation's only full-service plutonium facility. Building PF-4, which is located at TA-55, is both the newest (it opened in 1978) and only remaining facility in the DOE complex with the capability to conduct operations with all isotopes and chemical forms of plutonium, as well as other actinides. These diverse capabilities are packed into approximately 80,000 square feet of nuclear laboratory space.

Los Alamos also maintains significant capabilities for actinide research and processing in a much older facility, the Chemistry and Metallurgy Research (CMR) Building, which opened in 1952. The CMR Building consists of seven wings that house two banks of hot cells, laboratories designed for actinide materials science and analytical chemistry, and unique capabilities for working with actinide metals.

The CMR Building, which opened in 1952 and consists of seven wings that house two banks of hot cells, laboratories designed for actinide materials science and analytical chemistry, and unique capabilities for working actinide metals.

The seven wings of the CMR Building originally contained more than 50,000 square feet of nuclear laboratory space. By 2001, however, degradation of critical support systems resulted in a suspension of activities in one wing, increasingly stringent requirements for operational safety resulted in suspension of operations in a second, and planned decommissioning of a third wing reduced the amount of usable nuclear laboratory space to approximately 28,000 square feet.

In the 1990s, Los Alamos embarked on an aggressive program of upgrades to ensure continued safe operation of the CMR Building through 2010. By early 2001, approximately $76 million had been spent on the CMR upgrades, of which about one-half consisted of urgent maintenance items, with the balance directed toward upgrading building systems to meet regulatory requirements and to ensure continued safe operations.

Planned and completed upgrades included HEPA filter replacement in operational wings, upgrades to the fire protection system, improvements to exhaust stack monitoring systems, major upgrades of facility electrical systems, and safety-driven improvements to the building personnel accountability system.

Recent experience has demonstrated that substantial additional maintenance will be required to reduce the probability of unplanned outages resulting from the failure of aging and obsolete building systems.

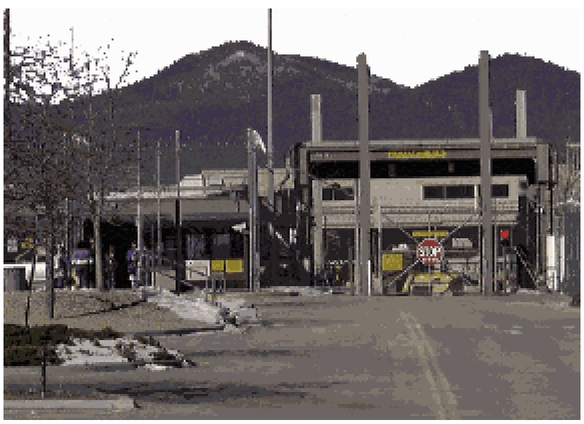
Together, the Plutonium Facility and the CMR Building represent a lifeboat for preserving the nation�s most critical nuclear technologies until they can be transitioned to the facilities of the future. In the near term, an increasing workload in support of production and support missions is competing for limited CMR and PF-4 floor space.

These missions currently include pilot production of nuclear defense components; surveillance of defense components; fabrication of components used in subcritical experiments; small-scale production of plutonium heat sources, analytical standards, and advanced nuclear fuels; materials surveillance; development and implementation of technologies for materials disposition; and investigative research.

Of these missions, the most difficult to prioritize is investigative research. However, history has repeatedly demonstrated that aggressive programs to understand today�s bench-top curiosities are the only certain means to avoid being on the wrong end of tomorrow�s technological surprises.

The challenge then, for the Nuclear Materials Technology (NMT) Division, which operates both PF-4 and the CMR Building, is twofold: to ensure continued success in current and future programmatic missions, and to preserve and expand technical capabilities while reducing the space and resources devoted to excess capacities.

The most critical factors to ensuring NMT's success in completing programmatic assignments are adequate and sustained budgets for facility operations and maintenance. Although the CMR upgrades project has addressed the most critical deficiencies in the facility, additional investment will be required to address the failure of aging and obsolete nonsafety-related systems.



The entrance to the TA-55 Plutonium Facility.

In the case of the Plutonium Facility, the outlook is for increased facility maintenance and operational costs as the facility ages. Because PF-4 has operated for nearly 25 years with no comprehensive plan for capital reinvestment and with limited budgets for facility maintenance and operation, unplanned outages will become increasingly common as components in key facility systems reach the end of their design lifetimes.

In addition, facility resources are stretched even further by requirements to meet regulatory and operational standards that were not in place, or even envisioned, at the time the facility was constructed.

The goal of reducing excess capacities while preserving and expanding technical capabilities will be much more difficult to achieve than completion of well-defined programmatic assignments.

The key factors to success in this area are by nature subjective. Assumptions must be made on the probabilities of increased or decreased program requirements for the outputs of various processes. Predictions must also be made on the significance and operational requirements of emergent technologies, such as room-temperature ionic liquids, that offer the promise of reducing the need for, or even replacing, current separations processes.

Both sets of assumptions and predictions must then be compared with existing facility configurations to identify specific laboratories and glove boxes (currently devoted to excess process capacities) that may be suitable for reconfiguration. Finally, funds must be identified to reconfigure these laboratories for other uses.

With sufficient budget, there are significant opportunities to reclaim the space occupied by excess process capacities. In PF-4, for example, which was originally designed as the nation's premier actinide research and development facility, a portion of the facility remains configured to separate and purify relatively large quantities of plutonium and other actinides.

Although these capabilities made significant contributions to the nation's defense in the early 1980s, it is unlikely that they will ever again be required to operate on that scale. Consolidation of the separations processes into a smaller footprint offers the potential to free up space that can then be used to support increasing programmatic workloads, emergent technologies, or waste reduction and treatment processes required to meet new regulatory standards.

Significant questions remain as to how long PF-4 and the CMR Building can be expected to remain operational given current and expected facility budgets and when new facilities will be available to house trans-itioned operations. Questions also remain about the long-term effects of compromises necessary to maintain production, programmatic support, research, and development within the limited space available in these two facilities.

Given the long lead time needed for construction of nuclear facilities and the limited remaining lifetime of the CMR Building, decisions must be made soon on the size, location, and capabilities of the DOE�s reconfigured nuclear complex.

At Los Alamos, work needs to accelerate on replacing the CMR Building with a new facility (or a set of smaller, cheaper facilities), and on development and implementation of the Integrated Nuclear Park (INP) concept proposed by Gen. John Gordon, head of the National Nuclear Security Administration (NNSA). The INP, if implemented, would consolidate all Los Alamos nuclear operations into one area.

Mello aff 3, par 10, ref 11

Report of the Nuclear Weapons Complex Infrastructure Task Force

Recommendations for the Nuclear Weapons Complex of the Future

July 13, 2005
Draft Final Report

Secretary of Energy Advisory Board
U.S. Department of Energy

Due to the nature of the processes, safety and security requirements must take a priority. This is obvious a given a facility of this critical nature. Unfortunately, the manufacturing operation at TA-55 is extremely inefficient when compared with any conventional manufacturing operation. There is little evidence of modern manufacturing techniques being employed. The fundamental process design is grounded in a seriously outdated "inspect quality in" mentality. Modern manufacturing techniques including Lean Manufacturing, Six Sigma, Design of Manufacturability and Assembly, and others, if applied rigorously could yield unprecedented reductions in TA-55 pit manufacturing costs and cycle time.

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.

Lean Manufacturing techniques such as Value Stream Mapping could easily be applied to the pit manufacturing process. Fundamentally, the pit facility produces one product, yet it appears that every pit produced is a "hand crafted individual object". This method of production yields process inefficiencies in **every** operation. Additionally, process automation at several steps of this process would be quite valuable. Currently available CNC machining centers, modified for the unique safety hazards would yield a wealth of productivity gains.

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.

This original was out of focus.

Mello aff 3, par 10, ref 12

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FY01 $K	FY02 $K	FY03 $K	FY04 $K	FY05 $K	FY06 $K	FY07 $K	FY08 $K	FY09 $K	FY10 $K	FY11 $K
DP-10 TRI-LAB Line Item Construction Plan															
H	Strategic Computing Facility (SCC)	DP-10	LIP	98,972	56,000	11,070									
H	SM-43 Replacement	DP-10	LIP	111,700			16,120	37,640	37,540	15,800					
M	Vulnerable Facility Replacement Program	DP-10	LIP	60,000				1,000		9,000	10,000	10,000	10,000	10,000	10,000
M	Rad Liquid Waste Upgrade	DP-10	LIP	20,000					4,000		16,000				
M	Power Grid Infrastructure Upgrade	DP-10	LIP	15,000						15,000					
M	Infrastructure Roof Upgrades	DP-10	LIP	21,000						3,000	3,000	3,000	3,000	3,000	6,000
M	DX Consolidation	DP-10	LIP	20,000						3,000		10,000	7,000		
M	LANSCE Support Complex	DP-10	LIP	18,000						3,000		7,000	8,000		
M	LANL Infrastructure Revitalization	DP-10	LIP	68,000							3,000		10,000	15,000	40,000
Subtotal – DP-10 TRI-LAB				**432,672**	**56,000**	**11,070**	**16,120**	**38,640**	**41,540**	**49,800**	**32,000**	**30,000**	**38,000**	**28,000**	**56,000**
DP-20 Line Item Projects															
H	CMR Upgrades	DP-20	LIP	128,568	13,280										
H	TA-18 Relocation	DP-20	LIP	100,000			10,000	20,000	30,000	30,000	10,000				
M	CMR Replacement	DP-20	LIP	375,000				25,000	50,000	80,000	100,000	95,000			
Subtotal – DP-20 Line Items				**503,568**	**13,280**		**10,000**	**45,000**	**80,000**	**110,000**	**110,000**	**95,000**			
Other Line Item Projects															
[illegible]	DARHT (Phase 2)	DP-10	LIP	155,343	34,460										
[illegible]	TA-53 Isotope Production Facility	DP-10	LIP	18,040	5,349	1,668									
[illegible]	NISC	NN	LIP	63,020	17,294	35,978	1,450								
[illegible]	NMSSUP, Phase I	DP-20	LIP	74,634	20,391	25,761	9,785	3,648	1,967						
[illegible]	Advanced Hydrotest Facility (formerly PRISM) ($1.6B to $1.98B Range)	DP-10	LIP	1,600,000	15,000	35,100	66,100	121,000	TBD	TBD	TBD	TBD	TBD	TBD	TBD
[illegible]	APT / Triple A Project	DP/NE	LIP	176,772	45,047	17,824									
[illegible]	Spallation Neutron Source Line Accelerator	[illegible]	LIP	204,516	41,865	54,440	57,401	15,466	1,722						
Subtotal – Other Line Items				**2,292,325**	**169,406**	**171,087**	**142,970**	**140,469**	**3,629**						
CERRO GRANDE REHABILITATION PROJECTS															
[illegible]	DARHT (BCP)	DP	LIP	6,100	6,100										
[illegible]	Emergency Operations Center	DP	LIP	20,000	20,000										
[illegible]	Multi-Channel Communication System	DP	LIP	8,000	8,000										
[illegible]	Two Office Buildings (TA46 & TA18)	DP	LIP	10,000	10,000										
[illegible]	Site-wide Fire Alarm Replacement	DP	LIP	25,000	25,000										
[illegible]	TA-50/54 Waste Mgt. Risk Mitigation	DP	LIP	29,100	29,100										
Subtotal – CGRP				**98,200**	**98,200**										
GPP & EXPENSE PROJECTS															
[illegible]	Fire Suppression Yard Main Replacement (TA-55)	DP-20	Expense	15,905	6,532	2,278									
[illegible]	Short Pulse Spallation Source (SPSS)	DP-10	Expense	25,400	5,112	5,148	556								
[illegible]	High Power Detonator Facility	DP-20	GPP	4,500	1,500	3,000									
[illegible]	TA-53-64 Cooling Tower	DP-10	GPP	4,400	5,350	600									
[illegible]	TA-53-62 Cooling Tower Replacement	DP-10	GPP	4,881	1,170	300									
[illegible]	TA-15 Electrical Distribution Upgrade	DP-10	GPP	2,500	2,000	500									
[illegible]	Water Treatment (TA-3)	DP-10	GPP	3,500	3,500										
M	Electrical Infrastructure Safety Upgrade Program	DP-10	GPP	40,690	1,500	7,800	9,500	8,300	8,600	4,500					
M	Decontamination & Volume Reduction System	EM	GPP	4,740											
M	TA-50 Salt Removal Evaporator	DP	GPP	10,000		2,000	2,000	2,000	2,000	2,000					

Mello aff 3, par 11, ref 13 & 14

FY 2003 PED design projects are described below. While not anticipated, some changes may occur due to continuing conceptual design studies or developments occurring after submission of this data sheet. These changes will be reflected in subsequent years. Preliminary estimates for the cost of Title I and II design and engineering efforts for each subproject are provided, as well as very preliminary estimates of the Total Estimated Cost (including physical construction) of each subproject.

FY 2003 Proposed Design Projects

03-01: Chemistry and Metallurgy Research Building Replacement (CMRR) Project, LANL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2003	4Q 2006	2Q 2005	TBD	55,000	350,000-500,000

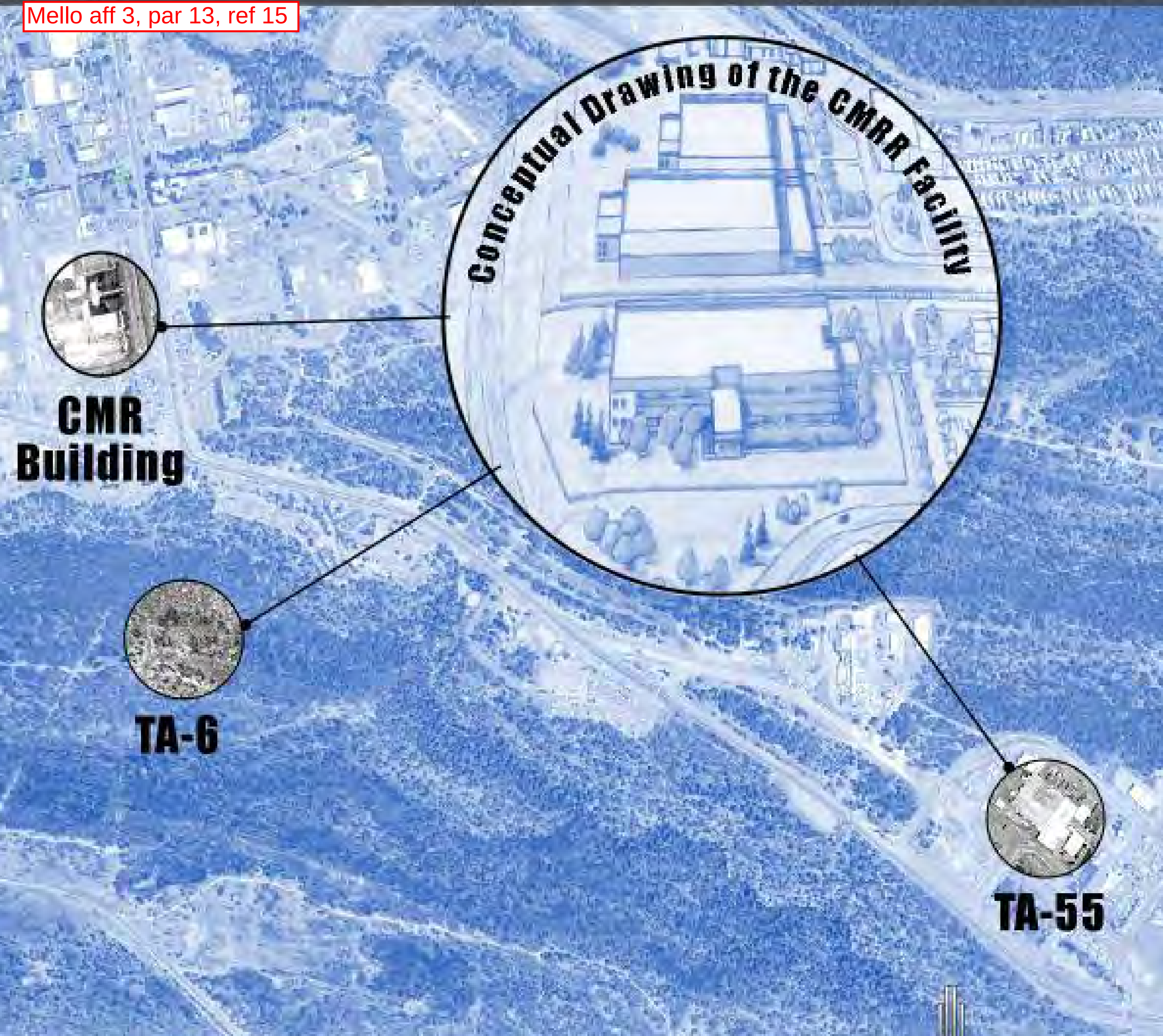
Fiscal Year	Appropriations	Obligations	Costs
2003	10,000	10,000	8,000
2004	25,000	25,000	24,500
2005	20,000	20,000	20,500
2006	0	0	2,000

This subproject includes the preliminary and final (Title I and Title II) design for the proposed Chemistry and Metallurgy Research Building Replacement (CMRR) Project at Los Alamos National Laboratory. The existing Chemistry and Metallurgy Research (CMR) Building is a Hazard Category 2 nuclear facility that is over fifty years old. CMR actinide chemistry research capabilities are vital to fulfil several critical LANL missions, including but not limited to, pit rebuild, pit surveillance and pit certification. In January 1999, DOE approved a strategy for managing risks at the CMR facility. This approval committed DOE and LANL on a course to upgrade and temporarily continue to operate the CMR facility through approximately 2010 with operational limitations. This approval also committed DOE and LANL to develop long-term facility and site plans to ensure continuous mission support beyond the year 2010. It was acknowledged that mission support beyond 2010 may require new facilities. The design project includes the preliminary and final (Title I and Title II) design for the proposed Chemistry and Metallurgy Research Building Replacement (CMRR) Project.

Final Environmental Impact Statement for the Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, Los Alamos, New Mexico

DOE/EIS-0350
November 2003

Mello aff 3, par 13, ref 15



U.S. Department of Energy

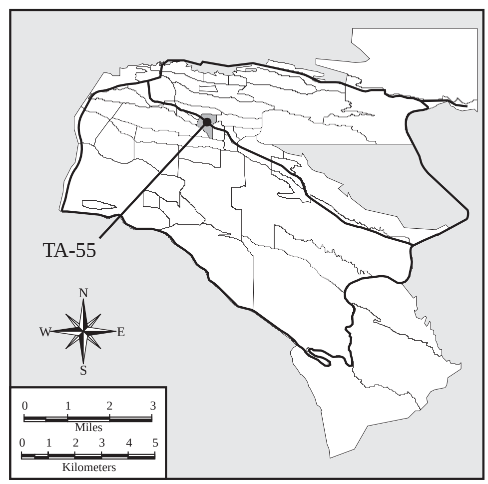
National Nuclear Security Administration

Los Alamos Site Office

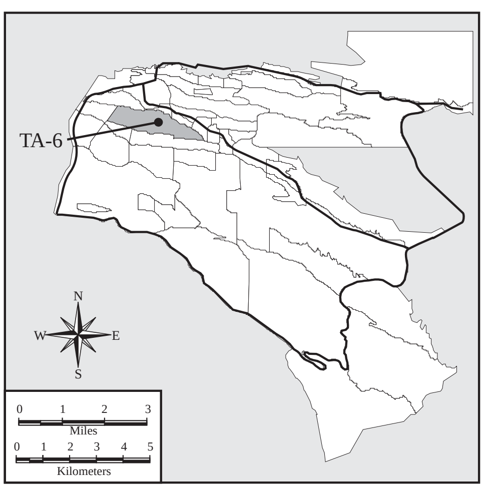
the Expanded Operations Alternative in the 1999 *LANL SWEIS*. This alternative also includes construction of a parking area(s) and other infrastructure support facilities. AC and MC capabilities would be moved from the existing CMR Building into the new buildings using a phased approach, and operations would resume there in a staged manner (there would be a period of operational overlap between the old CMR Building and the new CMRR Facility), and the existing CMR Building would be dispositioned. One of the new buildings in TA-55 would provide administrative offices and house support activities. AC and MC activities would be conducted in either two separate laboratories (Construction Options 1 and 2) or in one new laboratory (Construction Options 3 and 4). The configuration of the laboratories has not been determined at this stage of the project, but would be driven by safety, security, cost and operational efficiency parameters to be evaluated during the conceptual design. As indicated in Figure 1–2, if an action alternative were selected for implementation, then construction of new laboratories would take place in either TA-55 or TA-6. The construction options are:

Construction Option 1:	Build two separate laboratories above ground.
Construction Option 2:	Build two separate laboratories, one below ground and one above ground.
Construction Option 3:	Build one consolidated laboratory above ground.
Construction Option 4:	Build one consolidated laboratory below ground.

If a single new laboratory were constructed, it would be designated a Hazard Category 2 nuclear facility, and all AC and MC activities would be conducted in one building. If two new laboratories were constructed, one of the new buildings would be designated a Hazard Category 2 nuclear facility and the other designated a Hazard Category 3 nuclear facility. This EIS evaluates the environmental impacts that could result from constructing the Hazard Category 2 building aboveground and also belowground level. This EIS also includes an evaluation of environmental impacts that could result from construction of tunnels to connect the new buildings, SNM storage vaults, utility structures, security structures, and the construction of parking space for occupants of the new CMRR Facility.



TA-55 Site



TA-6 Site

An alternative site for the new CMRR Facility is also analyzed in this EIS – namely, constructing the new CMRR Facility within TA-6; this alternative is referred to as the “Greenfield” Site Alternative. The TA-6 site is a relatively undeveloped, forested area with some prior

Mello aff 3, par 15, ref 16

Project Engineering and Design funding provided in FY 2003 ($10,000,000) and FY 2004 ($4,500,000) will be used for preliminary design activities for both the Light Laboratory/Office Building and Nuclear Laboratory(s) elements of the project. FY 2004 construction funding requested in this line item will be used for initiation of design and construction for the light laboratory/office building component of CMRR and initiation of design activities for nuclear laboratory(s).

Scope

The scope for this project was developed through joint LANL/NNSA Integrated Nuclear Planning (INP) activities and workshops. The major CMRR scope elements resulting from INP activities are:

- Relocate existing CMR analytical chemistry and material characterization (AC/MC) capabilities at LANL.
- Special nuclear material storage for CMR AC/MC working inventory and overflow capacity for PF-4.

In addition to these two major elements, the following elements will be evaluated during conceptual design through the completion of option studies:

- Contingency space to accommodate future mission requirements.
- Large vessel containment and processing capabilities.
- Non-LANL user space requirements.
- Consolidation of LANL PF-4 AC/MC capabilities.

Net space requirements for the above listed scope elements within CMRR were developed through a LANL/NNSA INP workshop conducted in July 2001. The following space requirements were identified:

- 60,000 gross square feet of Hazard Category II space for AC/MC, large vessel containment and processing, material storage, and contingency space.
- 60,000 gross square feet of Hazard Category III/IV space for AC/MC and contingency space.
- 90,000 gross square feet for a light laboratory/office building.

Project Milestones

Light Lab/Office Building (design-build)

FY 2004	Initiate Design	1Q
FY 2004	Initiate Construction	2Q

Nuclear Laboratory(s)

FY 2004	Complete Conceptual Design	4Q
FY 2005	Complete Title I – Preliminary Design	1Q
FY 2006	Complete Title II – Final Design	3Q
FY 2011	Complete Title III – Construction	1Q
FY 2012	Complete Transition/Closeout	1Q

Mello aff 3, par 15, ref 17

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Mello aff 3, par 16, ref 18a

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Light Lab/Office Building (design-build)

FY 2004	Initiate Design	1Q
FY 2004	Initiate Construction	2Q

Nuclear Laboratory(s)

FY 2004	Complete Conceptual Design	4Q
FY 2005	Complete Title I – Preliminary Design	1Q
FY 2006	Complete Title II – Final Design	3Q
FY 2011	Complete Title III – Construction	1Q
FY 2012	Complete Transition/Closeout	1Q

Mello aff 3, par 16, ref 18b

	(dollars in thousands)		
	Appropriations	Appropriations	Appropriations
FY 2014	4,000	4,000	4,000
FY 2015	4,500	4,500	4,550
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD
D&D[a]			
	TBD	TBD	TBD
Total, D&D	TBD	TBD	TBD
OPC			
FY 2002	1,665	1,665	1,665
FY 2003	12,174	12,174	12,174
FY 2004	7,214	7,214	7,214
FY 2005	7,164	7,164	7,164
FY 2006	1,400	1,400	1,064
FY 2007	4,865	4,865	1,408
FY 2008	0	0	2,258
FY 2009	8,001	8,001	9,075
FY 2010	11,900	11,900	11,439
FY 2011	16,600	16,600	16,600
FY 2012	17,123	17,123	17,123
FY 2013	7,998	7,998	7,998
FY 2014	4,000	4,000	4,000
FY 2015	4,500	4,500	4,550
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD
Total Project Cost (TPC)			
FY 2002	1,665	1,665	1,665
FY 2003	12,174	12,174	12,174
FY 2004	26,655	7,214	7,214
FY 2005	60,415	79,856	9,012
FY 2006	83,760	83,760	36,144
FY 2007	72,448	72,448	60,944
FY 2008	74,141	74,141	92,286
FY 2009	105,195	105,195	118,136
FY 2010	108,900	108,900	154,019
FY 2011	241,600	241,600	176,561
FY 2012	322,123	322,123	295,123
FY 2013	257,998	257,998	307,998
FY 2014	303,961	303,961	304,000
FY 2015	304,500	304,500	304,550
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
FY 2018	TBD	TBD	TBD
FY 2019	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

[a] Section 9 provides preliminary pre-conceptual cost and schedule information for CMR D&D.

selecting third-party contractors will now be consistent with the approach currently used for applications for certification of natural gas facilities. The attached document provides an overview for starting the process. Additional information is available on the Commission's Web site at *http://www.ferc.gov/industries/hydropower/enviro/third-party/tpc.asp.*

Magalie R. Salas,

Secretary.

Office of Energy Projects; Third-Party Contracting Program

The Office of Energy Project's voluntary ''third-party contracting'' (3–PC) program enables applicants seeking certificates for natural gas facilities or licenses for hydroelectric power projects to fund a third-party contractor to assist the Commission in meeting its responsibilities under the National Environmental Policy Act of 1969.

The 3–PC program involves the use of independent contractors to assist Commission staff in its environmental review and preparation of environmental documents. A third-party contractor is selected by, and works under the direct supervision and control of Commission staff, and is paid for by the applicant. Prospective applicants considering participation in this 3–PC program should meet with Commission staff to discuss their proposals, and to answer any questions they might have relative to the program itself.

Applicants electing to participate in the 3–PC program will be required to prepare a draft Request for Proposal (RFP) for review and approval by the Commission staff before it is issued. The RFP will be required to include screening criteria, and an explanation of how the criteria will be used to select among the contractors who respond to the RFP. Subsequently, applicants would issue the approved RFP and screen all proposals received for technical adequacy and Organizational Conflict of Interest (OCI). The applicant is responsible for reviewing carefully all OCI materials (submitted for the prime and each proposed subcontractor as part of each proposal) to determine whether the candidate is capable of impartially performing the environmental services required under the third-party contract. The applicant will then submit to Commission staff the technical and cost proposals and OCI statements of their three best qualified candidates.

Final contractor selection will be made by Commission staff based on an evaluation of the technical, managerial, and personnel aspects of the candidates' proposals as well as OCI considerations. While bid fees will not necessarily be the controlling factor in the selection of the third-party contractor, relative cost levels will be considered. Commission staff will send the applicant an approval letter clarifying any details and/or resolving any issues that remain outstanding following review of the selected third-party contractor's proposal.

As soon as practical, the applicant will award a contract to the third-party contractor identified in the Commission staff's approval letter. The applicant and the contractor will determine the appropriate form of agreement for payment of the contractor by the applicant. Because the applicant will actually award the contract to the third-party contractor, it will be the applicant's responsibility to answer questions from candidates not selected.

The information provided above is intended to give a quick overview of the 3–PC program and how to get started. Detailed guidance specific to the gas and hydro process will be available soon. In the interim, applicants with specific questions about the 3–PC program can contact the following Commission staff:

Gas Certificate 3–PC program: Richard R. Hoffmann, Director, Division of Gas—Environment and Engineering, telephone (202) 502–8066, Office of Energy Projects, Federal Energy Regulatory Commission, 888 First Street, NE., Washington, DC 20426; *http://www.ferc.gov/industries/gas/enviro/third-party/tpc.asp.*

Hydropower Licensing 3–PC program: Ann F. Miles, Director, Division of Hydropower—Environment and Engineering, telephone (202) 502–6769, Office of Energy Projects, Federal Energy Regulatory Commission, 888 First Street, NE., Washington, DC 20426; *http://www.ferc.gov/industries/hydropower/enviro/third-party/tpc.asp.*

Inquiries regarding OCI should be directed to: David R. Dickey, Staff Attorney, General and Administrative Law (GC–13), telephone (202) 502–8527, Office of General Counsel, Federal Energy Regulatory Commission, 888 First Street, NE., Washington, DC 20426.

Inquiries regarding ex parte *should be directed to:* Carol C. Johnson, Staff Attorney, General and Administrative Law (GC–13), telephone (202) 502–8521, Office of General Counsel, Federal Energy Regulatory Commission, 888 First Street, NE., Washington, DC 20426.

[FR Doc. E4–257 Filed 2–11–04; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. RP04–51–000]

Paiute Pipeline Company; Notice of Rescheduling of Technical Conference

February 4, 2004.

In its Order issued December 4, 2003,[1] the Commission directed that a technical conference be held to better understand several aspects of Paiute Pipeline Company's November 7, 2003 tariff filing pertaining to segmentation and backhaul transportation.

Take notice that the technical conference has been rescheduled for Wednesday, February 25, 2004 at 10 a.m., in a room to be designated at the offices of the Federal Energy Regulatory Commission, 888 First Street, NE., Washington, DC 20426.

All interested persons and staff are permitted to attend. Parties that wish to participate by phone should contact Sharon Dameron at (202) 502–8410 or at *sharon.dameron@ferc.gov* no later than Wednesday, February 18, 2004.

[1] Paiute Pipeline Company, 105 FERC ¶ 61,271

Magalie R. Salas,

Secretary.

[FR Doc. E4–261 Filed 2–11–04; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

National Nuclear Security Administration

Record of Decision: Final Environmental Impact Statement for the Chemistry and Metallurgy Research Building Replacement Project, Los Alamos National Laboratory, Los Alamos, NM

AGENCY: National Nuclear Security Administration, Department of Energy.

ACTION: Record of decision.

SUMMARY: The U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA) is issuing this record of decision on the proposed replacement of the existing Chemistry and Metallurgy (CMR) Building at Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico. This record of decision is based upon the information contained in the ''Environmental Impact Statement for the Proposed Chemistry and Metallurgy Research Building Replacement Project, Los Alamos National Laboratory, Los Alamos, New Mexico'', DOE/EIS–0350 (CMRR EIS), and other factors, including the programmatic and technical risk, construction requirements, and cost. NNSA has decided to implement the preferred alternative, alternative 1, which is the construction of a new CMR Replacement (CMRR) facility at LANL's Technical Area 55 (TA–55). The new CMRR facility would include a single, above-ground, consolidated special nuclear material-capable, Hazard Category 2 laboratory building (construction option 3) with a separate administrative office and support functions building. The existing CMR building at LANL would be decontaminated, decommissioned, and demolished in its entirety (disposition option 3). The preferred alternative includes the construction of the new CMRR facility, and the movement of operations from the existing CMR

building into the new CMRR facility, with operations expected to continue in the new facility over the next 50 years.

FOR FURTHER INFORMATION CONTACT: For further information on the CMRR EIS or record of decision, or to receive a copy of this EIS or record of decision, contact: Elizabeth Withers, Document Manager, U.S. Department of Energy, Los Alamos Site Office, 528 35th Street, Los Alamos, NM 87544, (505) 667–8690. For information on the DOE National Environmental Policy Act (NEPA) process, contact: Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (EH–42), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586–4600, or leave a message at (800) 472–2756.

SUPPLEMENTARY INFORMATION:

Background

The NNSA prepared this record of decision pursuant to the regulations of the Council on Environmental Quality for implementing NEPA (40 CFR parts 1500–1508) and DOE's NEPA implementing procedures (10 CFR part 1021). This record of decision is based, in part, on information provided in the CMRR EIS.

LANL is located in north-central New Mexico, about 60 miles (97 kilometers) north-northeast of Albuquerque, and about 25 miles (40 kilometers) northwest of Santa Fe. LANL occupies an area of approximately 25,600 acres (10,360 hectares), or approximately 40 square miles (104 square kilometers). NNSA is responsible for the administration of LANL as one of three National Security Laboratories. LANL provides both the NNSA and DOE with mission support capabilities through its activities and operations, particularly in the area of national security.

Work at LANL includes operations that focus on the safety and reliability of the nation's nuclear weapons stockpile and on programs that reduce global nuclear proliferation. LANL's main role in NNSA mission objectives includes a wide range of scientific and technological capabilities that support nuclear materials handling, processing and fabrication; stockpile management; materials and manufacturing technologies; nonproliferation programs; and waste management activities. LANL supports actinide (any of a series of elements with atomic numbers ranging from actinium-89 through lawrencium-103) science missions ranging from the plutonium-238 heat source program undertaken for the National Aeronautics and Space Administration (NASA) to arms control and technology development.

The capabilities needed to execute NNSA mission activities require facilities at LANL that can be used to handle actinide and other radioactive materials in a safe and secure manner. Of primary importance are the facilities located within the CMR building and the plutonium facility (located in TAs 3 and 55, respectively). Most of the LANL mission support functions require analytical chemistry (AC) and materials characterization (MC), and actinide research and development support capabilities and capacities that currently exist within facilities at the CMR building and that are not available elsewhere. Other unique capabilities are located within the plutonium facility. Work is sometimes moved between the CMR building and the plutonium facility to make use of the full suite of capabilities they provide.

The CMR building is over 50 years old and many of its utility systems and structural components are deteriorating. Studies conducted in the late 1990s identified a seismic fault trace located beneath one of the wings of the CMR building that increases the level of structural integrity required to meet current structural seismic code requirements for a Hazard Category 2 nuclear facility (a Hazard Category 2 nuclear facility is one in which the hazard analysis identifies the potential for significant onsite consequences). Correcting the CMR building's defects by performing repairs and upgrades would be difficult and costly. NNSA cannot continue to operate the assigned LANL mission-critical CMR support capabilities in the existing CMR building at an acceptable level of risk to public and worker health and safety without operational restrictions. These operational restrictions preclude the full implementation of the level of operation DOE decided upon through its 1999 record of decision for the ''Site-wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory'' (DOE/EIS–0238) (LANL SWEIS). Mission-critical CMR capabilities at LANL support NNSA's stockpile stewardship and management strategic objectives; these capabilities are necessary to support the current and future directed stockpile work and campaign activities conducted at LANL. The CMR building is near the end of its useful life and action is required now by NNSA to assess alternatives for continuing these activities for the next 50 years. NNSA needs to act now to provide the physical means for accommodating continuation of the CMR building's functional, mission-critical CMR capabilities beyond 2010 in a safe, secure, and environmentally sound manner.

Alternatives Considered

NNSA evaluated the environmental impacts associated with the proposed relocation of LANL AC and MC, and associated research and development capabilities that currently exist primarily at the CMR building, to a newly constructed facility, and the continued performance of those operations and activities at the new facility for the next 50 years. The CMRR EIS analyzed four action alternatives: (1) The construction and operation of a complete new CMRR facility at TA–55; (2) the construction of the same at a ''greenfield'' location within TA–6; (3) and a ''hybrid'' alternative maintaining administrative offices and support functions at the existing CMR building with a new Hazard Category 2 laboratory facility built at TA–55, and, (4) a ''hybrid'' alternative with the laboratory facility being constructed at TA–6. The CMRR EIS also analyzed the no action alternative. These alternatives are described in greater detail below.

Alternative 1 is to construct a new CMRR facility consisting of two or three new buildings within TA–55 at LANL to house AC and MC capabilities and their attendant support capabilities that currently reside primarily in the existing CMR building, at the operational level identified by the expanded operations alternative for LANL operations in the 1999 LANL SWEIS. Alternative 1 would also involve construction of a parking areas(s), tunnels, vault area(s), and other infrastructure support needs. AC and MC activities would be conducted in either two separate laboratories (constructed either both above ground (construction option 1) or one above and one below ground (construction option 2)) or in one new laboratory (constructed either above ground (construction option 3) or below ground (construction option 4)). An administrative office and support functions building would be constructed separately.

Alternative 2 would construct the same new CMRR facility within TA–6; the TA–6 site is a relatively undeveloped, forested area with some prior disturbance in limited areas that is referred to as a ''greenfield'' site.

Alternatives 3 and 4 are ''hybrid'' alternatives in which the existing CMR building would continue to house administrative offices and support functions for AC and MC capabilities (including research and development) and no new administrative support

Mello aff 3, par 19, ref 20

CHEMISTRY
METALLURGY
RESEARCH
REPLACEMENT

CMRR Public Meeting, March 3, 2010

Volume 9

Los Alamos National Laboratory
Los Alamos, New Mexico

Los Alamos NATIONAL LABORATORY EST. 1943

NNSA National Nuclear Security Administration

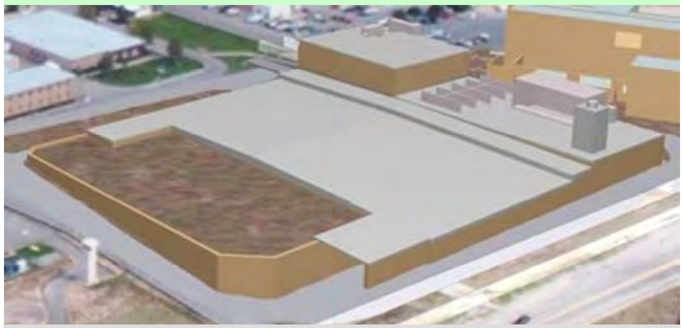
LA-UR 10-02173

CMRR Overall Project Structure

CMRR Project

Two closely interrelated facilities in differing phases of development.

Nuclear Facility (NF)



- Baseline under Development:
- CMR Laboratory Replacement Capability
- Nuclear "Hazard Category 2" Facility
- 22,500 Net Square Feet Lab Space
- Special Nuclear Material storage (6M tons)
- Special Facility Equipment
- Robust "Security Category 1"

Status: In design

Radiological Laboratory/Utility/Office Building (RLUOB)

Building Shell

- Facility Performance Baseline ($164M TPC):
- 19,500 NSF radiological lab space (<8.4g 239 Pu equivalent)
- Centralized utilities/services for all CMRR facility elements
- Office space for 350 CMRR workers
- Consolidated training facility
- Facility incident command; emergency response capabilities

Status: Substantially Complete

Equipment

- RLUOB Equipment Installation (REI)
- Operational equipment to complete functionality of RLUOB

Status: Performance Baseline Approved – July 2009
TPC = $199.4M
Completion – 2013

One project on the Congressional Data Sheet – multiple efforts within NNSA/DOE.

Mello aff 3, par 19, ref 21a

CHEMISTRY
METALLURGY
RESEARCH
REPLACEMENT

CMRR Public Meeting, September 23, 2009

Volume 8

Los Alamos National Laboratory
Los Alamos, New Mexico

LA-UR 10-00676

done that too. And keep working on the design, essentially, to maintain continuity of the design teams. And then, the budget for ’09 was 97.2 million. For ’10, the House [US House of Representatives] mark is at 55 million. We’re at 97 million in the Senate [US Senate] version. I don’t think the two committees have joined yet to reach a conference committee decision, um, because I think Congress has been a little busy lately. So the direction has not changed substantially to the project.

[RICK HOLMES]
Next chart.

[LANL Slide 11]
[RICK HOLMES]
Kinda the highlight schedule. For those of you that haven’t seen the history of the project, it’s been around for a very long time. Um, a couple of things that have been done is the Congressional Commission on Strategic Posture, sometimes known as the Perry Commission Report, is out there and available. Uh, the Nuclear Posture Review is now planned. We’re hearing sometime in February. And we don’t control any of that. It’s, y’know, the administration’s document. Um, and I’ll talk about the details of the rad lab schedule and how we get into, ready for radiological operations in that building, when we get to the REI [RLUOB equipment installation] part.

[RICK HOLMES]
Next chart.

[LANL Slide 12]
[RICK HOLMES]
Go ahead

[LANL Slide 13]
[RICK HOLMES]
So, the rad lab itself is essentially three stories of offices. So the fourth floor is the training center, which is intended to replace the training center that’s located currently downtown. It will have a couple of simulated laboratories in it, meaning there’s some equipment that people can get, get their training on. There are two full levels of office spaces: some hard-walled offices; some are cubicles.

[RICK HOLMES]
The first level has all of the radiological labs in it, in 26 modules. It’s scope has not changed in terms of that. And in below grade in the basement, with the mezzanine in it, is all the utility infrastructure: the ventilation systems, etcetera, to run the laboratory, er run, run the building. Adjacent to the rad lab itself is a centralized utilities building. And that building provides for certain commodities: hot water, chilled water, those types of things that support the rad lab operations.

[RICK HOLMES]

Mello aff 3, par 19, ref 21b

9. Required D&D Information

As directed by the DOE Acquisition Executive at CMRR CD-0, NNSA and LANL developed a pre-conceptual cost and schedule range for the D&D requirements of the existing CMR Building located at TA-3 during the CMRR conceptual design. The initial pre-conceptual cost estimate range for D&D of the CMR Building is approximately $200,000,000 - $350,000,000 (un-escalated FY 2004 dollars) with an associated schedule estimate range of 4-5 years. This information was presented as part of CMRR CD-1 per Secretarial direction issued at CD-0.

During the 3rd Quarter of FY 2005, the D&D of the existing CMR facility received CD-0 in conjunction with CMRR CD-1 approval. Current Future Years Nuclear Security Program/Integrated Construction Program Plan (FYNSP/ICPP) funding profiles do not include the funding for the D&D of the CMR Facility. NNSA will not initiate CMR D&D activities until completion and operational start-up of the CMRR Nuclear Facility, currently projected to be operational well after the FYNSP budget planning window. As such, budget formulation for CMR D&D is premature for the FY 2011 budget submission. The inclusion of the D&D CMR Facility budget will occur upon the establishment of a project number and update of the FYNSP/ICPP in out year budget cycles.

The CMR D&D commitment is reflected in this CPDS for completeness. However, as planning for this D&D activity matures, NNSA may elect to enable this effort as a separate project, execute it as an element of a wider project or program for a portfolio of D&D activities at LANL, or bundle it with other, yet undefined activities.

Area	Gross Square Feet (gsf)
TA-55-400 (Radiological Laboratory & Office Building) TA-55-440 (Central Utility Building)	187,127 20,998
TA-55-500 (Security Category I/Hazard Category II Nuclear Facility)	406,000 (beneficial occupancy post FY 2018)
TA-3, Building 29 (CMR)	(571,458)
LANL "banked excess" necessary to offset one-for-one requirement	42,667

Name and site location of existing facility to be replaced: CMR (TA-3, Building 29)

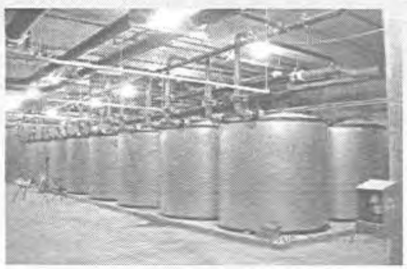
When originally conceptualized, the replacement facilities for CMR, the RLUOB and NF, were thought to result in a significantly smaller space than the CMR facilities being replaced. However, owing to needs to meet modern health, waste, safety, and security functions, the combined space for CMRR is now expected to exceed the space for CMR.

CMRR has incorporated the NNSA Fiscal Year Banking of Excess Facilities Elimination, New Construction and Net Banked Square Footage reporting process that documents, through the DOE Facilities Information Management System (FIMS), the data associated with new construction added by the RLUOB and the NF. The new construction square footage is accounted for once beneficial occupancy is received and is subsequently offset with LANL "banked excess" additional D&D space to meet the "one-for-one" requirement within the FY 2002 Energy and Water and Water Development Appropriations Bill conference report (107-258). Given planned new construction (including CMRR) at LANL and planned excess facility reductions, the excess program is projecting it will have banked well

Mello aff 3, par 19, ref 21c

Chemistry and Metallurgy Research Replacement (CMRR)

Construction



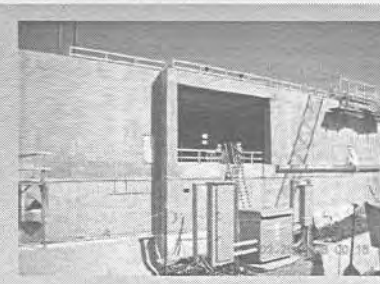
RLUOB Construction Scope

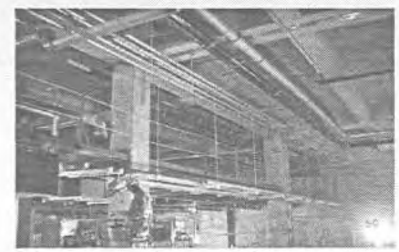
Laboratory - 19,500 sf of Radiological Space

- Capability for 26 Lab Modules
- Laboratory spaces are designed to be flexible and modular
- 4 Lab Modules fitted out in ACCLP contract

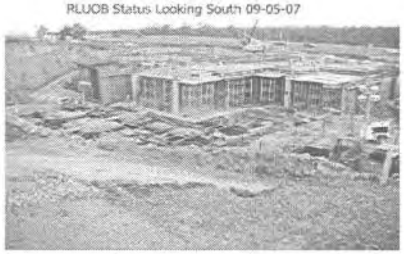
Centralized Utility Building - (RLUOB and Nuclear Facility)

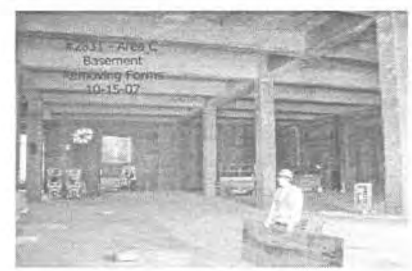
- Skid-mounted water treatment system
- Skid-mounted unit to produce de-ionized water
- Packaged boilers to produce heating water
- Chillers to produce cooling water
- Thermal energy (ice) storage unit
- A skid-mounted compressor system to produce compressed air
- Standard electrical power with diesel generated back up supply
- Specialty Gases: argon, helium, nitrogen, regen, & P-10





RLUOB Status Looking South 09-05-07





Chemistry and Metallurgy Research Replacement (CMRR)

Construction

RLUOB Construction Scope

Office space for 350 workers

Training Facility and 46 Trainer offices

- 4 classrooms capable of holding 25 trainees
- Space for 2 simulated Labs

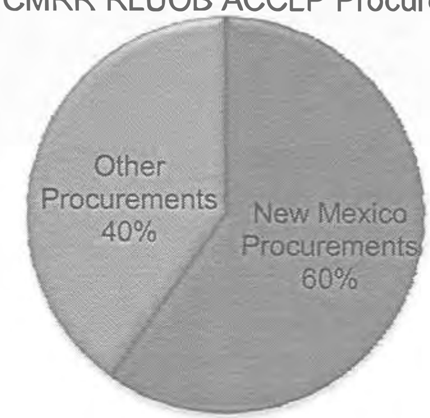
Facility Incident Command Center & Emergency Response Capabilities

Facility Operations Center

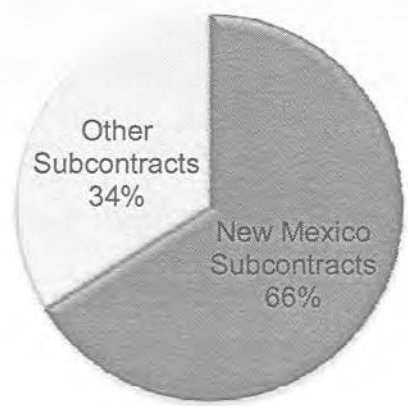
Construction Bulk Commodities

Structural Concrete	16,800 cubic yards
Structural Steel	1,010 tons SF: incl. rebar? probably.
Electrical Conduit and Raceway	197,000 linear feet
Electrical Wire and Cable	412,000 linear feet
Process Piping and Tubing	50,000 linear feet
Sheet Metal Duct Work	8,000 linear feet

New Mexico Procurements vs.
other CMRR RLUOB ACCLP Procurements



New Mexico Subcontracts vs.
other CMRR RLUOB ACCLP Subcontracts



Mello aff 3, par 19, ref 21d

CMRR Project

Phase A:

Radiological Laboratory Utility Office Building (RLUOB)

Phase B:

Special facilities equipment, including long-lead equipment and instrumentation

Phase C:

Nuclear Laboratory Facility

CMRR Project: An Overview

The Chemistry and Metallurgy Research Replacement (CMRR) Project primarily supports Defense Program activities at Los Alamos National Laboratory (LANL). Costing $745M to $975M over 8 to 12 years, construction is planned in three phases:

A Radiological Laboratory Utility Office Building (RLUOB)

B Special facilities equipment, including long-lead equipment and instrumentation

C Nuclear Laboratory Facility

The CMRR Project will provide the capabilities the National Nuclear Security Administration (NNSA) and LANL need to continue the nuclear mission to maintain and certify the US nuclear stockpile through work in the following areas:

- Pit manufacturing, surveillance, and disassembly
- Enhanced surveillance
- Milliwatt radioisotope thermoelectric generator surveillance
- Retired stockpile component processing
- Aboveground subcritical experiments
- Special nuclear material readiness and materials storage
- Advanced design/production technologies
- Dynamic materials properties
- Material certification in a hostile environment
- Arms control and nonproliferation
- Advanced nuclear fuels

These analytical chemistry, materials characterization, and actinide research and development capabilities, currently housed in the 550,000 sq ft CMR building, will move to the new CMRR facilities as they are completed.

Phase A: Radiological Laboratory Utility Office Building

The RLUOB will house radiological laboratory space; a training center, 4 classrooms, and 2 nonradiological training simulation labs; a utility building that supports all CMRR Project facilities; and office space to support 350 personnel in segregated (cleared and uncleared) areas.

An Entrance Control Facility will connect a tunnel from the RLUOB to the Nuclear Laboratory Facility.

The RLUOB also will have a Facility Incident Command Center, an operations center, and space for future support of the existing Technical Area 55 Plutonium Facility, PF-4.

A design-build contract, a procurement method already successfully demonstrated at LANL, was issued to Austin Commercial Contractors, LP, of Dallas, TX, in November 2005.

The proposed RLUOB total project cost performance baseline is $164M (contract life is 1095 calendar days). Approximately 300 construction workers will be employed during the RLUOB contract.

Phases B and C

Preliminary design work is under way on Phases B and C. Construction work for Phase C is scheduled to begin in 2008 and is expected to be complete by 2013.

Mello aff 3, par 19, ref 21e

CMRR – Project Scope

CMRR Project

Radiological Lab Utility Office Building (RLUOB)

Facility Performance Baseline ($164M TPC):
- 19,500 nsf radiological lab space (<8.4g 239 Pu equivalent)
- Centralized utilities/services for all CMRR facility elements
- Office space for 350 CMRR workers
- Consolidated training facility
- Facility incident command; emergency response capabilities

Status: In construction

RLUOB Equipment and Installation
- Lab Room Equipment and finishes
- Security Equipment & Telecommunications
- Final Lab Ops Tie-ins & Lab filtration

Status: Design nearing completion, Procurement to begin this summer

Nuclear Facility (NF)

Baseline under Development:
- CMR Chemistry Replacement Capability
- 22,500 nsf lab space
- Special Nuclear Material storage (6M tons)
- Special Facility Equipment

Status: Preparation for Final Design Start

EST. 1943

CHEMISTRY & METALLURGY RESEARCH REPLACEMENT

Mello aff 3, par 20, ref 22a

04-D-125, Chemistry and Metallurgy Research Building Replacement (CMRR) Project, Los Alamos National Laboratory (LANL), Los Alamos, New Mexico Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-1 for the Nuclear Facility (NF), Special Facility Equipment (SFE), and Radiological Laboratory/Utility/Office Building (RLUOB) equipment installation components of the project, and CD-2/3A for the RLUOB facility component of the project. The CMRR CD-1 was approved on May 18, 2005, which at the time had a preliminary cost range of $745,000,000 - $975,000,000. It is recognized that many of the prior planning assumptions have changed. Further discussion below addresses these changes impacting the estimate. The CD-2/3A for the RLUOB construction was approved on October 21, 2005, with a Total Project Cost (TPC) of $164,000,000. The construction of the RLUOB is being executed with a design build contract. Subsequent Critical Decisions will be sought for the establishment of the performance baselines to install SFE equipment in the RLUOB and for the NF and associated SFE equipment. The TPC of the RLUOB construction is part of the overall CMRR Project preliminary cost range.

Based upon DOE/NNSA Program direction to the project in FY 2007 and FY 2008, the project scope description in Section 4 was modified to address incorporation of the Special Facility Equipment (formerly addressed as Phase B), into each of the respective facility components of CMRR, namely the RLUOB and NF. The start of final design was approved for the SFE associated with the RLUOB in May 2007. With the completion of the RLUOB/SFE final design in FY 2008 and the anticipated establishment of the performance baseline in FY 2009, this effort is being addressed as the Equipment Installation effort necessary for the RLUOB to become programmatically operational. For the Nuclear Facility, the facility construction, equipment procurement and installation, and facility operational readiness will be addressed within the NF performance baseline.

A revised estimate to complete assessment will be performed by the project prior to authorization for NF final design. The estimate for construction of the NF is now viewed to be significantly higher (TPC above $2,000,000,000) than studied earlier during conceptual design. The funding profile reflected in Section 5 for the inclusive period of FY 2011 to FY 2014 is a funding placeholder for the NF final design only. No funding placeholder for construction of the Nuclear Facility is included in this data sheet. The decision about how far to proceed into final design 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.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

Mello aff 3, par 20, ref 22b

04-D-125, Chemistry and Metallurgy Research Building Replacement (CMRR) Project, Los Alamos National Laboratory (LANL), Los Alamos, New Mexico Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decisions (CD) are CD-1 for the Nuclear Facility (NF), Special Facility Equipment (SFE), and Radiological Laboratory/Utility/Office Building (RLUOB) phases of the project, and CD-2/3A for the RLUOB phase of the project. The CMRR CD-1 was approved on June 17, 2005 with a preliminary cost range of $745,000,000 - $975,000,000, although costs could be greater. Subsequently, the CD-2/3A for the RLUOB was approved on December 5, 2005, with a Total Project Cost (TPC) of $164,000,000. The NF and SFE are continuing with final design, while the Radiological Laboratory/Utility/Office Building is being executed with a design build contract. The TPC of the RLUOB is part of the overall CMRR Project preliminary cost range.

Based on continued examination of the project and recent, industry-wide experience related to the increases in the cost of construction of comparable facilities, the estimate for construction of the Nuclear Facility at CMRR is now viewed to be significantly higher. Initial estimates place the revised TPC above $2,000,000,000. A final cost estimate will be established when the Nuclear Facilities performance baseline is established at CD-2, which is estimated to occur during FY 2010. Funding profile reflected in Section 5 for the inclusive period of FY 2010 to FY 2013 is a funding placeholder for the construction which will be needed for the plutonium facility. This decision will result from the NEPA and PEIS process the NNSA is presently conducting.

A Federal Project Director with certification level IV has been assigned to this project.

This PDS is an update of the FY 2008 PDS.

Mello aff 3, par 20, ref 23

- CD-1, Approve Alternative Selection and Cost Range. The selected alternative and approach is the optimum solution;
- CD-2, Approve Performance Baseline. Definitive scope, schedule and cost baselines have been developed;
- CD-3, Approve Start of Construction/Execution. The project is ready for implementation; and
- CD-4, Approve Start of Operations or Project Completion. The project is ready for turnover or transition to operations, if applicable.

Figure 1 illustrates the requirements for the typical implementation of the DOE Acquisition Management System for Line Item Capital Asset Projects. Figure 2 depicts the implementation for Other Capital Asset Projects such as Major Items of Equipment (MIE) and Operating Expense (OE) projects.

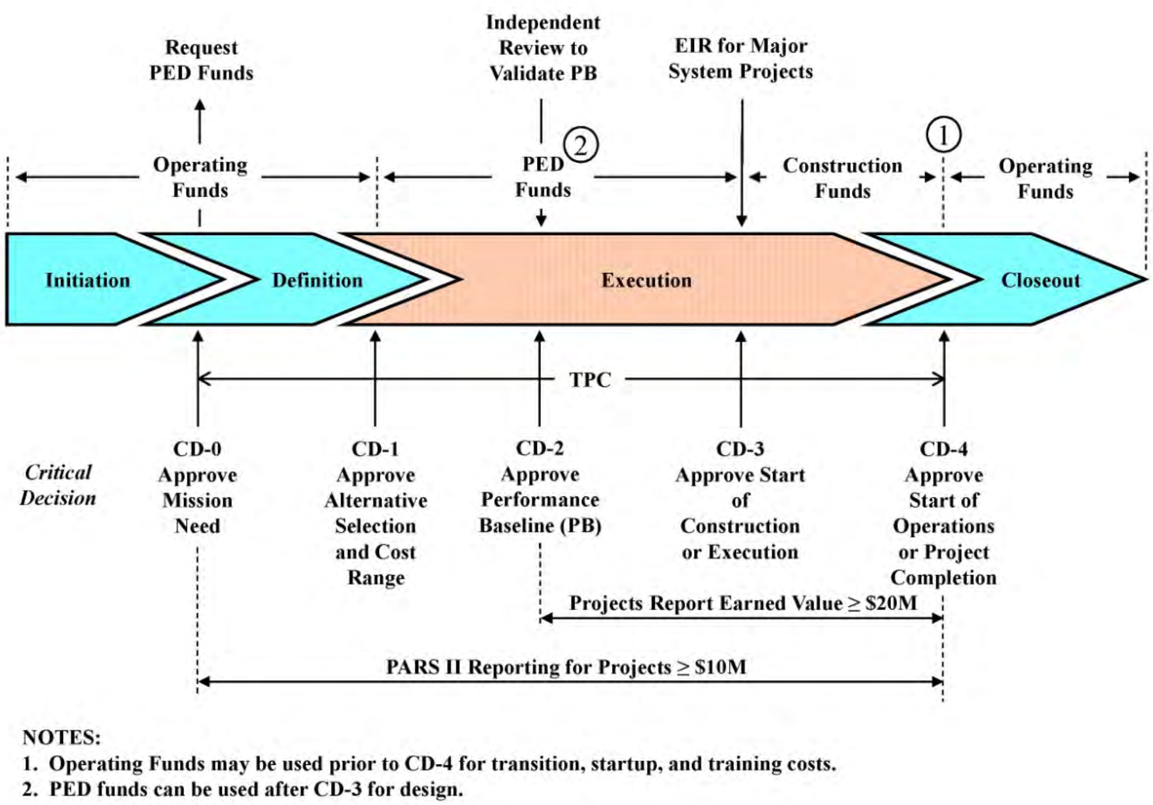


Figure 1. Typical DOE Acquisition Management System for Line Item Capital Asset Projects

Mello aff 3, par 20, ref 24

documents as well. Approval of CD-1 provides the authorization to begin the project Execution Phase and allows PED funds to be used. Table 2.1 lists the requirements needed to attain CD-1.

The cost range provided at CD-1 is the preliminary estimate for the selected alternative. As CD-1 progresses to CD-2, the TPC will be refined and the TPC established at CD-2 may be higher than the range defined at CD-1, in which case the AE must be notified. The CD-1 cost range is not the PB cost. The PB against which project success is measured will be established at CD-2. The only exception is when a construction budget request is submitted in advance of an approved CD-2. In this circumstance, refer to Appendix A, Paragraph 4.c.(2).

If the top end of the original approved CD-1 cost range grows by more than 50% as the project proceeds toward CD-2, the Program, in coordination with the AE, must reassess the alternative selection process. Upon completing the review, the AE must approve a revised CD-1 identifying the new or reaffirmed selected alternative and an updated CD-1 cost range. This new CD-1 information, to include the new CD-1 cost range and CD-1 approval date, will be reflected within PARS II and all subsequent PDSs and similar project documentation.

Table 2.1 CD-1 Requirements[1]

Prior to CD-1	**Approval Authority[2]**
Approve an Acquisition Strategy with endorsement from OECM for Major System Projects. (Refer to DOE G 413.3-13.)	PSO
Approve a preliminary Project Execution Plan (PEP). The Tailoring Strategy, if required, can be included in the PEP or placed in a separate document. (Refer to DOE G 413.3-15.)	SAE or AE
• Approve appointment of the Federal Project Director considering the requirements in DOE O 361.1B.	SAE or AE
• Establish and charter an Integrated Project Team to include a responsibility assignment matrix. The Charter may be included in the PEP. (Refer to DOE G 413.3-18.)	PSO ≥ \$750M FPD < \$750M
• Develop a Risk Management Plan (RMP) and complete an initial risk assessment of a recommended alternative. This may be included in the PEP. For evaluating the Safety-in-Design Strategy, prepare Risk and Opportunity Assessments for input to the RMP. (Refer to DOE G 413.3-7 and DOE-STD-1189-2008.)	
For projects with a TPC ≥ \$100M, OECM will develop an Independent Cost Estimate and/or conduct an Independent Cost Review, as they deem appropriate.	
Comply with the One-for-One Replacement legislation (excess space/offset requirement) as mandated in House Report 109-86. (Refer to DOE O 430.1B.)	

Mello aff 3, par 21, ref 25

initial budget submission. At that time, a funding profile will be established and included in the PDS to support this default cost baseline.

- This original PB is refined with formal CD-2 approval and cannot exceed the top-end range established at CD-1. The project funding profile will be modified accordingly to align with the CD-2 cost baseline.

- If the ultimate CD-2 breaches the top-end cost range established at CD-1, approval to continue the project will be obtained from the SAE through the ESAAB process.

- If long lead procurement is needed upon budget submission, pursue CD-3A with the AE. (The default CD-2 performance baseline [or TPC] is the upper limit of the CD-1 cost range.)

(3) Execution typically comprises the longest and most costly phase of the project, but is only a fraction of the total life-cycle cost of a project. Value Management (VM) and VE techniques, as appropriate, should be used to ensure that the most effective life-cycle solutions are implemented. Refer to OMB Circular A-131.

d. CD-3, Approve Start of Construction/Execution.

CD-3 is a continuation of the execution phase. The project is ready to complete all construction, implementation, procurement, fabrication, acceptance and turnover activities. Table 2.3 lists the requirements needed to attain CD-3.

LANL Construction: Pajarito Corridor

NEWS, EVENTS, OPPORTUNITIES

NEWS ARCHIVE

Lab begins design of new waste staging facility - October 28, 2010

LANL has obtained Department of Energy approval to begin preliminary design of a new Transuranic (TRU) waste staging facility along the Pajarito Corridor at Technical Area (TA) 63. The facility will replace a number of buildings and fabric domes at TA-54 that must be closed and remediated by 2015, under the Consent Order agreement with the state of New Mexico.

The new four-acre complex, planned for construction in an area closed to the general public, will include multiple staging buildings, an operations center, and a concrete pad for mobile waste characterization equipment. The staging area will accommodate newly generated waste destined for the Waste Isolation Pilot Plant (WIPP) near Carlsbad, NM. TRU waste, which by law must go to WIPP, contains items such as gloves, clothing, and lab equipment contaminated with elements heavier than uranium and above certain quantities.

TRU waste would be packaged where it is generated (at various Lab sites), then characterized and certified for shipping at the new facility. "This facility will be safer for workers and the public," said Craig Leasure, deputy principal associate director of LANL's Weapons Program. "It consolidates our operations and will be more cost efficient."

A modification to LANL's hazardous waste permit will be required for the new facility, which will likely be submitted next summer. "We'll work closely with the New Mexico Environment Department to ensure we're meeting their expectations," Leasure said. After preliminary and final designs are approved, construction will occur in two phases: site infrastructure and facility construction. Completion is targeted for the end of 2015.

For more info, read the September 1, 2010, news release .

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Lab wins DOE environmental sustainability award - October 20, 2010

LANL received an Environmental Sustainability (EStar) award from the DOE for integrating sustainable practices in its design for the Radiological Laboratory/Utility/Office Building (RLUOB), part of the CMRR construction project, and received a plaque at the Green Government Conference in Washington, D.C. The CMRR Project is on track for Leadership in Energy and Environmental Design (LEED) Silver Certification.

EStar awards recognize excellence in pollution prevention and sustainable environmental stewardship, and are awarded for project and programs that reduce environmental impacts, enhance site operations, and reduce costs. “We’re very proud of the RLUOB team’s award,” said Kevin Smith, manager of the NNSA’s Los Alamos Site Office. "Designing for environmental sustainability is at the heart of being good stewards of the environment, and it also helps NNSA meet the energy reduction goals established by President Obama."

The RLUOB Integrated Planning, Design, Procurement, and Construction project integrates a number of sustainability practices. These include sustainable site selection and development, reduced water use, optimized energy performance, use of products manufactured locally with recycled content, and enhanced indoor quality. Further, the project recycled or reused more than 80 percent of the materials generated during construction to avoid disposal in a landfill.

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NNSA to analyze environmental impact of CMRR Project - October 7, 2010

The National Nuclear Security Administration (NNSA) published a notice of intent in the Federal Register detailing its decision to prepare a supplemental environmental impact statement (SEIS)

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to assess the potential environmental impacts of construction and operation of the nuclear facility portion of the CMRR project. The original EIS was conducted in 2003 and since that time NNSA and LANL have incorporated additional safety measures into plans for the project.

The SEIS process, which is open to the public, involves a 30-day comment period (ending November 1) and two public scoping meetings. The first meeting will be held on October 19 at the White Rock Town Hall, 139 Longview Drive, Los Alamos, NM. The second hearing is October 20 at the Cities of Gold Casino Hotel in Pojoaque, NM. Both meetings will begin at 4 p.m. and end at 7 p.m. Read the SEIS notice of intent.

A recent NNSA news release stated that the new facility would consolidate and relocate existing capabilities at LANL to ensure that NNSA can maintain the safety, security and effectiveness of the nuclear stockpile, and benefit other NNSA missions including nonproliferation, primary physics, basic science, medical isotopes, and technology development for waste treatment and minimization.

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Pajarito road busy with construction - September 2, 2010

Have you ridden down Pajarito Road lately? It's a bustle of construction activity. According to Tom McKinney, Associate Director for Project Management and Site Services, it's only going to get busier! Based on anticipated funding, major construction will continue along the stretch of Pajarito Road between TA-48 and TA-46 from 2010 to 2020, enhancing LANL's future research capability and missions, and remediating environmental issues from past missions.

The good news is that construction projects will provide growth and prosperity for LANL, our local community, and the northern New Mexico economy. Funding for construction and development also means an endorsement at the highest levels for our national security mission.

The bad news is that it will be inconvenient. The introduction of large-scale construction will bring dramatic changes to area infrastructure which, in turn, will affect normal operations, including traffic flow, utilities, parking, safety and security, and recreational activities in the area.

To manage this venture, the Pajarito Corridor Integration Project has been developed and personnel have begun coordinating the interface, with affected parties, between construction activity and ongoing operations, and a real-time, master integrated schedule is in place to identify, record, and deal with project issues as they arise.

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LANL construction forum draws hundreds - June 16, 2010

About 300 interested individuals attended a community forum on June 16, 2010, in Española sponsored by LANL. Attendees learned about planned construction projects and potential economic development opportunities at the Lab, a number of which are beginning and will continue for several years along Pajarito Road, an access-controlled road on LANL property between Los Alamos and White Rock.

Construction projects include legacy cleanup initiatives, waste treatment facilities, enhanced security infrastructure for the Lab's plutonium facility, and the building of a replacement laboratory for chemistry and metallurgy sciences. LANL's Deputy Director, Isaac "Ike" Richardson, said the forum was intended to give the public and other interested parties first-hand knowledge about the projects. "We are anticipating, over the course of about a decade, [creating] up to a thousand new jobs mostly in construction crafts. Almost all will be hired through subcontractors."

Richardson reminded the audience that construction projects at LANL are subject to funding that must be approved by Congress. Tom McKinney, LANL's associate director for Project Management and Site Services, said cultural and environmental impact studies [along the Pajarito Corridor] have been completed while additional studies on local traffic impacts and utility needs are underway.

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Mello aff 3, par 26, ref 28

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements are being met.

Funds appropriated for this project may be used to provide independent assessments and other direct support determined necessary by the FPD for the planning and execution of this project.

5. Financial Schedule

RLUOB Facility

	(dollars in thousands)		
	Appropriations	Obligations	Costs
TEC			
FY 2004	9,941	0	0
FY 2005	39,684	49,625	0
FY 2006	54,450	54,450	15,933
FY 2007	41,933	41,933	29,364
FY 2008	13,122	13,122	50,085
FY 2009	0	0	58,348
FY 2010	0	0	5,400
Total, TEC	159,130	159,130	159,130
OPC[a]			
FY 2008	0	0	1,153
FY 2009	4,870	4,870	2,455
FY 2010	0	0	1,262
Total, OPC	4,870	4,870	4,870
Total Project Cost (TPC)			
FY 2004	9,941	0	0
FY 2005	39,684	49,625	0
FY 2006	54,450	54,450	15,933
FY 2007	41,933	41,933	29,364
FY 2008	13,122	13,122	51,238
FY 2009	4,870	4,870	60,803
FY 2010	0	0	6,662
Total, TPC	164,000	164,000	164,000

[a] OPCs for CMRR were not segregated by project phase until FY 2009. Aggregate OPCs for earlier years are reported with the NF.

	(dollars in thousands)		
	Appropriations	Obligations	Costs
OPC			
FY 2009	3,079	3,079	5,602
FY 2010	10,700	10,700	8,177
FY 2011	14,100	14,100	14,100
FY 2012	14,123	14,123	14,123
FY 2013	4,498	4,498	4,498
Total, OPC	46,500	46,500	46,500
Total Project Cost (TPC)			
FY 2007	11,489	11,489	2,959
FY 2008	21,613	21,613	9,410
FY 2009	8,077	8,077	10,672
FY 2010	50,700	50,700	68,177
FY 2011	73,100	73,100	69,561
FY 2012	29,923	29,923	34,123
FY 2013	4,498	4,498	4,498
Total, TPC	199,400	199,400	199,400

Nuclear Facility

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2004	9,500	0	0
FY 2005	13,567	23,067	1,848
FY 2006	27,910	27,910	19,147
FY 2007	14,161	14,161	27,213
FY 2008	0	0	15,079
FY 2009	0	0	-329
FY 2010	0	0	2,180
Total, PED (PED 03-D-103-01)	65,138	65,138	65,138
Final Design			
FY 2008	39,406	39,406	15,454
FY 2009	92,196	92,196	45,972
FY 2010	57,000	57,000	75,000
FY 2011	166,000	166,000	104,500
FY 2012	102,800	102,800	102,800
FY 2013	60,000	60,000	112,375
Total, Final Design (TEC 04-D-125)	TBD	TBD	TBD
Total, Design	TBD	TBD	TBD
Construction			
FY 2011	0	0	0
FY 2012	186,400	186,400	155,200
FY 2013	240,000	240,000	187,625
FY 2014	299,961	299,961	300,000
FY 2015	300,000	300,000	300,000
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
Total, Construction (TEC 04-D-125)	TBD	TBD	TBD

Mello aff 3, par 33, ref 31

	(dollars in thousands)		
	Appropriations	Obligations	Costs
OPC			
FY 2009	3,079	3,079	5,602
FY 2010	10,700	10,700	8,177
FY 2011	14,100	14,100	14,100
FY 2012	14,123	14,123	14,123
FY 2013	4,498	4,498	4,498
Total, OPC	46,500	46,500	46,500
Total Project Cost (TPC)			
FY 2007	11,489	11,489	2,959
FY 2008	21,613	21,613	9,410
FY 2009	8,077	8,077	10,672
FY 2010	50,700	50,700	68,177
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FY 2013	4,498	4,498	4,498
Total, TPC	199,400	199,400	199,400

Nuclear Facility

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2004	9,500	0	0
FY 2005	13,567	23,067	1,848
FY 2006	27,910	27,910	19,147
FY 2007	14,161	14,161	27,213
FY 2008	0	0	15,079
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Final Design			
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FY 2009	92,196	92,196	45,972
FY 2010	57,000	57,000	75,000
FY 2011	166,000	166,000	104,500
FY 2012	102,800	102,800	102,800
FY 2013	60,000	60,000	112,375
Total, Final Design (TEC 04-D-125)	TBD	TBD	TBD
Total, Design	TBD	TBD	TBD
Construction			
FY 2011	0	0	0
FY 2012	186,400	186,400	155,200
FY 2013	240,000	240,000	187,625
FY 2014	299,961	299,961	300,000
FY 2015	300,000	300,000	300,000
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
Total, Construction (TEC 04-D-125)	TBD	TBD	TBD

Turner, however, suggested that the U.S. would be better served by abandoning the goal of a nuclear weapons-free world, citing the increasing threat of nuclear weapons proliferation around the world. "We know the threat of nuclear weapons is actually increasing by the number of countries that are seeking and or possessing nuclear weapons technology," Turner said. "That threat does not appear to be decreasing. So I'm very concerned as we try to translate what should perhaps be a stated dream into an actual goal or policy that affects both the role and numbers of our strategic deterrent. Instead of just being something we are advocating for on the international stage, we're actually looking to our national policy and changing as you said the roles and numbers of nuclear weapons."

The Administration has tried to find the balance between maintaining the stockpile and reducing the salience of nuclear weapons, and the requested FY2011 funding boost would provide significant money for the agency's work on the weapons stockpile, supporting the ongoing W76 refurbishment program as well as refurbishment studies on the B61 and W78 warheads. It also provides significant investment in science and technology at the national laboratories, and endorses construction of two major facilities officials say are necessary to modernize and consolidate aging buildings: the Uranium Processing Facility planned for the Y-12 National Security Complex, and the Chemistry and Metallurgy Research Replacement-Nuclear Facility planned for Los Alamos National Laboratory.

Chilton Happy With Nuclear Investment

Gen. Kevin Chilton, the Commander of U.S. Strategic Command, has long called for additional investments in the nation's arsenal and weapons complex, and he told the House subcommittee that the Administration's budget request was a good start to maintaining the nation's nuclear deterrent. "To have a first-class nuclear deterrent you must have a first-class plutonium production capability and a uranium production capability," he said. "The investments in this budget that start to improve the infrastructure at Los Alamos as well as at Oak Ridge are absolutely fundamental to enabling the capability I've talked about in the past."

He also voiced support for the Stockpile Manage Program, the Congressionally directed program that grew out of the defeat of the Reliable Replacement Warhead program. Authored by the House Armed Services Strategic Forces Subcommittee and included in the Fiscal Year 2010 Defense Authorization Act, the program allows for a tailored approach to maintaining the nuclear weapons stockpile within a set of guidelines that would preclude the addition of new capabilities for warheads or a need to return to underground nuclear testing. Chilton said he did not see a need for new military capabilities for the weapons stockpile or a need to return to testing, but said it was important to preserve the ability to make certain changes to the stockpile, potentially to increase safety, security and effectiveness, especially as the size of the stockpile decreases. "We should not constrain our engineers and scientists from developing options on what it would take to achieve the objectives of the Stockpile Management Program," Chilton said. "Let them bring forward their best recommendations for the President and then let the Congress assess what is the best way forward." In his written testimony, Chilton said he supported refurbishment studies not only on the W78, but also on the W88 submarine-launched warhead, for which the Administration did not request funding in FY2011. The W88, which is getting new pits as part of Los Alamos National Laboratory's reconstituted pit production capability, isn't expected to be refurbished for nearly two decades.

Conventional Not 'One-for-One' Substitute for Nukes

Chilton said he supported the move toward using more conventional forces for roles previously occupied by nuclear weapons, like the Prompt Global Strike capability currently being explored, but he stopped short of saying that conventional weapons could fully replace nuclear weapons when it comes to deterrence. The Pentagon is currently studying the appropriate mix of conventional versus nuclear weapons, Miller told the panel, but Chilton offered a note of caution. "We have to be careful when we start talking about one-for-one substitutions of conventional weapons for nuclear weapons," Chilton said. "When it comes to the deterrence mission—not the war-fighting mission necessarily, the deterrence mission—nuclear weapons have a deterrent factor that far exceeds a conventional threat. We have to be very careful in our discussions … when we start looking at these options."

Chilton said the Prompt Global Strike capability should be "an additional weapon in the quiver of the president," but not the only option. "The connective tissue between that and the one-for-one exchange for a nuclear deterrent, I'm not quite there," he said.

—Todd Jacobson

DEFENSE BOARD RAISES CONCERNS ABOUT NNSA SAFETY CHANGES

DNFSB Worried That Ruling at Los Alamos National Laboratory Sets Precedent

The National Nuclear Security Administration's inadequate handling of nuclear safety at Los Alamos National Laboratory's Technical Area 55 could be setting a precedent that raises the risk of radiation releases at other sites, according to a March 15 letter from the Defense Nuclear Facilities Safety Board to the DOE. The question is whether the DOE's approval of a Documented Safety Analysis (DSA) at the lab's TA-55 plutonium facility, known as PF-4, despite a calculated accident does in excess of 25 rem to the maximally exposed member of the public off lab property, could allow similar decisions at other facilities, according to DNFSB vice chairman John Mansfield, the letter's author. "Our concern was mostly PF-4 but they seem willing to approve other DSAs with mitigated consequences greater than 25 rem," Mansfield told *NW&M Monitor*.

In essence, the letter argues, the NNSA's handling of safety at PF-4 suggests the agency has determined that portions of DOE Standard 3009, the implementation guidelines for developing DSAs, are optional. In particular, the letter zeroes in on the agency's practices for handling the issues outlined in Appendix A of Standard 309, the section that discusses the parameters to be used in calculating the dose to the maximally exposed offsite individual. "If a contractor chooses to use this methodology," the letter asks, "what part of the recommended approach to safety and the contents of Appendix A for implementation of the Evaluation Guideline are mandatory, and what parts are optional?" The letter continues: "What is DOE's regulatory framework for assuring adequate protection of the public, the workers, and the environment if the methodology prescribed in DOE Standard 309 is used but the goals specified in Appendix A are not achieved? If the mitigated dose consequences to the public … approach or exceed the Evaluation Guideline, what steps or actions must be taken to ensure adequate protection of public health and safety is provided?"

Seismic Concerns Plague Projects

The struggle over how to handle seismic risk at PF-4 most recently was evident in a strongly worded October 2009 letter from the DNFSB complaining that the offsite dose from an earthquake-induced fire at PF-4 exceeded the DOE Evaluation Guideline of 25 rem "by more than two orders of magnitude" (*NW&M Monitor*, Vol. 14 No. 44). Built in the 1970s, PF-4 sits atop a volcanic mesa at Los Alamos in an area criss-crossed by earthquake faults. Work done by lab geophysicists and others in the 1990s led to the conclusion that the area has been more seismically active in the recent past than was previously understood, increasing the credible earthquake threat bounding the safety envelope at the facility and other similar Los Alamos facilities. The same issue has driven changes in the design of the new Chemistry and Metallurgy Research building replacement project, driving up costs there, officials have said.

The PF-4 risk comes from potential ignition sources, such as furnaces, within glovebox lines containing plutonium. In an earthquake scenario, the gloveboxes could shake free of their mountings and crash to the ground, while the ignition sources could start a fire. The resulting radioactive smoke, according to the worst case accident scenario contemplated in the Standard 3009 DSA analysis, could then escape the building. An additional $6.7 million has been allocated to near-term fixes this year to reduce the risk at PF-4, but officials have acknowledged that the resulting worst case accident scenario as calculated using the criteria in STD 3009 is still well above the 25 rem level (*NW&M Monitor*, Vol. 14 No. 7). The TA-55 Reinvestment Project, with includes some money for seismic safety upgrades as well as other work, has an estimated cost of $75 million to $100 million. No firm calculation has yet been done regarding the cost of improvements necessary to bring seismic accident risks below the 25 rem level, but industry experts have said it could cost in the hundreds of millions of dollars.

Board Worries About Reach of New Approach

While the specific concerns being raised apply to PF-4 at Los Alamos, the Board wants to clarify whether a similar approach applies to other facilities. The issues were discussed in a Dec. 30, 2009 meeting between NNSA officials and Safety Board staff, which NNSA followed up with a "white paper" outlining NNSA's expectations regarding how the STD 3009 implementation would be done in the future. "The Board would like to understand DOE's and NNSA's intent; specifically, if the recent regulatory interpretation is meant to apply across all DOE defense nuclear facilities," the DNFSB letter states. The letter asks for information on what other defense nuclear facilities do not have safety controls to reduce the radiation risk to the public below the 25 rem standard, and what the agency has done in response. "By accepting documented safety analyses with calculated mitigated consequences greater than the Evaluation Guideline, DOE is essentially nullifying the consequence-based methodology established by 10 CFR 830 and evident in DOE's practices since DOE issued the rule," the Board wrote.

NNSA spokesman Damien LaVera, in a statement, said the agency is reviewing the DNFSB letter, but he declined to reveal the rationale for the relaxed policy. "The Department has received the Board's letter and is evaluating the concerns is raised," LaVera said. "We recognize that the safety of the public, our workers and the environment is critical to the accomplishment of our national security mission, and that appropriate use of our safety guidelines is key to our safety strategy. After our review is complete, we will provide the answers that the Board has requested."

—Todd Jacobson and staff reports

News (7/09 to present)
News Releases (7/09 to present)
News Releases archive (pre-7/09)

Lab technology helps power Rover on Mars

By Jim Danneskiold
February 9, 2004

Mello aff 3, par 46, ref 37

This full-resolution image taken by the panoramic camera onboard the Mars Exploration Rover Spirit before it rolled off the lander shows the rocky surface of Mars. Scientists are eager to begin examining the rocks because, unlike soil, these "little time capsules" hold memories of the ancient processes that formed them. The lander's deflated airbags can be seen in the foreground. Data from the camera's red, green and blue filters were combined to create this approximate true color picture. Image credit: NASA/JPL/Cornell A little bit of plutonium from the Laboratory is keeping NASA's Mars rovers warm and ready to rove despite the frigid Martian temperatures.

In fact, the Spirit and Opportunity rovers can stay warm and keep collecting data for nearly five times longer, thanks to about an ounce and a half of Los Alamos plutonium-238.

Los Alamos' Pu-238 Science and Engineering (NMT-9) Group made eight lightweight radioisotope heater units each for the Spirit and Opportunity rovers. Each of the 16 units contains just under one-tenth of an ounce of plutonium, and each pumps out a continuous one watt of heat as the plutonium decays.

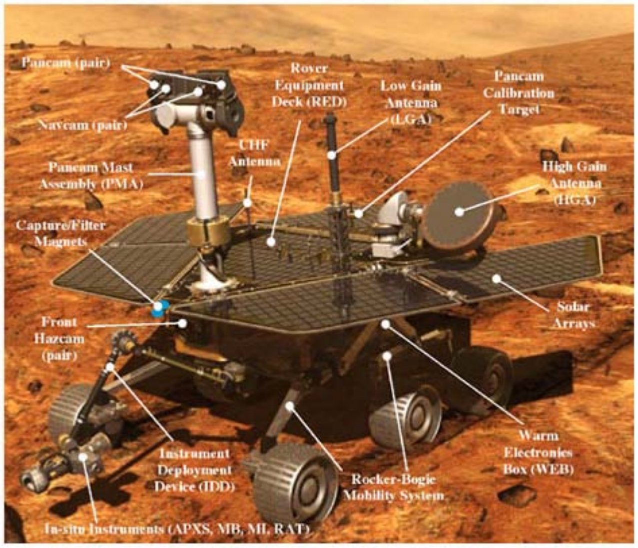
Housed inside the rover fuselages, called Warm Electronic boxes because they provide a temperature-controlled environment, the heater units keep electronic and mechanical components warm enough to function reliably in the bitter cold of space. They transfer heat directly to the rover systems and instruments, without moving parts or electronic components.

The heater units are the latest in a long line of plutonium heaters and thermal batteries fabricated at Los Alamos for all of NASA's deep space probes, as well as for the Sojourner rover, which explored the red planet for three months as part of NASA's Pathfinder mission in the summer of 1997. The heat comes from plutonium-238, the shorter-lived and much hotter cousin of weapons-grade plutonium, or plutonium-239.

Temperatures on the Martian surface at the rover landing sites can vary from about 70 degrees Fahrenheit in the daytime to 146 degrees F below zero at night. Los Alamos designed the heater units to keep the rovers between 40 below and 40 above; temperatures inside the Warm Electronics boxes have remained higher than a toasty four below zero.

"The constant heat provided by the lightweight radioisotope heater units will allow both rovers to gather data on the surface of Mars for at least 90 days," said Liz Foltyn of NMT-9. "Without that supplemental heat, the mission could last only 20 Mars days."

Heating each rover's components are small electrical heaters, excess heat from the electronics and the eight Los Alamos



heater units. At night, with solar panels shut down, rover heaters rely solely on rechargeable batteries for power. The constant heat from the plutonium units greatly extends battery life, because the electrical heaters don't need nearly as much battery power.

Each cylindrical heat source consists of a hot-pressed pellet of plutonium oxide, a platinum-rhodium vented capsule, a pyrolytic graphite insulator and a tightly woven, pierced fabric graphite aeroshell assembly that protects the fuel from impact, fire or atmospheric re-entry. The units are roughly one inch in diameter and one and one-quarter inches long. The Warm Electronics Box is double-walled with panels of alloy honeycomb and epoxy graphite laminate. Between the walls is an insulating foam called aerogel.

"Some of these materials wouldn't be out of place on a Formula One racecar," Foltyn said. "And the goal is similar: keeping temperatures within safe ranges in extreme conditions."

Radioisotope heater units made at Los Alamos maintain operating temperatures for instruments aboard the Galileo space probe and on the Cassini spacecraft and Huygens probe. Coupled with static electrical converter systems in a variety of radioisotope thermoelectric generators, plutonium-238 heat sources have helped provide electrical power for numerous other successful space instruments for more than three decades, including Apollo lunar surface scientific packages, several satellites and the Pioneer, Viking, Voyager, Galileo and Cassini space probes.

The heater units on the surface of Mars originally were fabricated at Technical Area 55 for NASA's Cassini mission, which is scheduled to arrive at Saturn in July. Support for NMT-9 salaries and operations comes from DOE's Office Of Space and Defense Power Systems, while NASA paid for fabrication of the heater units.

Details about the project are available in a 1996 technical report by Gary Rinehart, "Lightweight Radioisotope Heater Unit (LWRHU) Production for the Cassini Mission," LA-13143-MS, available at http://lib-www.lanl.gov/cgi-bin/getfile?00318474.pdf online. (Adobe Acrobat Reader required)

More information about the Spirit and Opportunity rovers is available at the NASA-Jet Propulsion Laboratory Web site at http://marsrovers.jpl.nasa.gov/mission/spacecraft_surface_rover.html online.

LANLSCIENCE

NEW TECHNOLOGY »

Powerful Light Pulses Imitate Stars, Make Fusion Reactions Clearer

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110TH CONGRESS, 1st Session | HOUSE OF REPRESENTATIVES | REPORT 110–185

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS BILL, 2008

JUNE 11, 2007.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. VISCLOSKY, from the Committee on Appropriations, submitted the following

REPORT

together with

ADDITIONAL VIEWS

[To accompany H.R. 2641]

The Committee on Appropriations submits the following report in explanation of the accompanying bill making appropriations for energy and water development for the fiscal year ending September 30, 2008, and for other purposes.

INDEX TO BILL AND REPORT

35–894

ditional funding to restore the baseline Uranium Processing Facility (UPF) PED funding that was reprogrammed in fiscal year 2007 to fund other purposes by the NNSA. The Committee supports the facility and material consolidation activities at the Y–12 Plant.

Project 04–D–125, Chemistry and Metallurgy Research Facility Replacement (CMRR), LANL.—The recommendation provides no funds for the CMRR project, a decrease of $95,586,000 from the budget request. The Committee direction halts the construction activity at the CMRR facility. Proceeding with the CMRR project as currently designed will strongly prejudice any nuclear complex transformation plan. 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. The NNSA is directed to develop a long-term plan to maintain the nation's nuclear stockpile requirements that does not assume an a priori case for the current program. Production capabilities proposed in the CMRR should be located at the future production sites identified in a detailed complex transformation plan that supports the long-term stockpile requirements. The Committee is concerned the NNSA is proceeding with large expenditures for this project while there are significant unresolved issues, and recommends the fiscal year 2007 funding be held in reserve. Although the NNSA claims the Nuclear Facility Phase 3 of the project is under review, the Committee notes the Laboratory excavated 90,000 cubic yards of soil at the construction site where the CMRR Phase 3 Nuclear Facility is proposed to be built. The Committee also notes the Department's CMRR acquisition strategy combines Critical Decision 2 (approval of performance baseline) and Critical Decision 3 (approval to start construction) under DOE Order 413.3A on project management. The Committee does not support construction projects that fail to strictly adhere to DOE Order 413.3 requirements by abbreviating the process.

Project 04–D–128, TA–18 mission relocation project, Los Alamos National Laboratory.—The Committee recommends $14,455,000, a decrease of $15,000,000 from the budget request. The Department of Energy's Inspector General conducted an audit on the NNSA's ability to maintain capability of the TA–18 mission to conduct nuclear criticality experiments during the transfer of the special nuclear materials from the TA–18 facility at Los Alamos National Laboratory to the Device Assembly Facility (DAF) at the Nevada Test Site. Although the NNSA goal was to restore interim criticality operations as early as 2005, the current NNSA plan delays transfer and reestablishment of capability at DAF until 2010 at the earliest. The Department recognized the security requirement to remove the SNM from TA–18 in 1999; however, according to the DOE IG, it will now take over a decade for the NNSA to complete the relocation of the criticality experiments mission. While the Committee is disappointed at the failure of the NNSA and Los Alamos National Laboratory to complete the SNM consolidation activity, the funding reduction reflects the schedule slip and reallocation of funding for higher priorities.

Mello aff 3, par 49, ref 41

Chemistry and Metallurgy Research Building Replacement Project May 2007

Preface and Executive Summary:

In the Senate Report (109-274, page 155) to accompany the FY 2007 Energy and Water Appropriations Bill, the Senate Appropriations Committee Subcommittee for Energy and Water Development stated:

> "The Committee has reviewed the Department's Complex 2030 proposal and noted several assumptions regarding mission scope of the CMR-R facility that don't seem to match current planned activities. The Committee directs the Administrator to deliver a report by June 1, 2007, clarifying the cost and mission requirements this facility will be expected to address."

This report replies to that request.

The NNSA is closely coordinating the Chemistry and Metallurgy Research Building Replacement Project (CMRR) with its Complex 2030 Vision. The NNSA is committed to proceeding with construction of the CMRR Radiological Laboratory and to completing the design of the CMRR Nuclear Facility. However, the NNSA will defer any decision on whether to construct the nuclear facility until the Complex 2030 Record of Decision (ROD) in the fall of 2008. NNSA's plan is prudent risk management to maintain the nuclear facility's schedule while awaiting strategic decisions.

While the cost performance baseline for the nuclear facility has not been established, NNSA expects that the cost to deliver the CMRR would be greater than estimated at the project's Critical Decision-1 in May 2005. NNSA takes its responsibility seriously with respect to taxpayer dollars and will release validated financial figures when they are available.

Option II: Use existing LANL facilities, supplemented by the NF to achieve a higher pit production capability and to support transfer of LLNL plutonium mission and material to LANL.

Option IIA: Rely on the current NF design approach, which has not been optimized for pit manufacturing capacity. This option has been NNSA's plan since its CMRR Record of Decision in February 2004 and through the CMRR's CD-1 in May 2005.

Option IIB: Expand the NF's capabilities to achieve a somewhat higher pit production capacity.

Option III: Use existing LANL plutonium facilities as interim assets until a new consolidated plutonium facility is operational.[2]

Option IV: Combine Options II and III. Option II would allow for a delay in implementing Option III, or would serve as prudent risk management by assuring national security capabilities are retained while Option III is implemented.

Thus, the CMRR has a significant role in Complex 2030 planning in either Option II or Option IV. Although decisions about future plutonium facilities will be made in the Complex 2030 Record of Decision in 2008, NNSA recognizes that progress on certain aspects of the CMRR project is needed in the interim. The existing CMR is at the end of its life and cannot be relied upon for extended performance of vital national security activities. Consistent with prudent risk management, NNSA has chosen to continue design efforts for the NF to assure continued progress if an alternative calling for this facility is selected. The choice enables key design issues to be addressed, many of which would be applicable to any future plutonium facility regardless of its location.
In addition, the choice enables the most rapid execution of the NF project, should this be part of the alternative selected. No activities relating to NF beyond design would be pursued until, and unless, a Record of Decision locating this facility at LANL is issued.

Stockpile Transformation and its Relationship to the CMRR:

A pit production capability will be required at LANL for the next decade at a minimum, independent of stockpile transformation. Without the CMRR, the long-term pit production capacity at LANL is limited to approximately 10 to 15 pits per year, based on limited vault space and multiple mission requirements. The actual throughput that would be achieved likely would be lower owing to the inherent unreliability of the CMR. LANL provides the Nation's sole pit production capability until a new consolidated

[2] The consolidated plutonium capability could be included within an overall consolidation of all nuclear (uranium and plutonium) operations in the Complex. In particular, based on comments made during the 90-day public scoping period which ended on January 17, 2007, NNSA decided to include the Consolidated Nuclear Production Center as an alternative in the Supplement to the Stockpile Stewardship and Management Programmatic EIS.

plutonium center is available. Although the limited LANL capability does sustain a certain level of production capability, the 10 pits per year rate would not support meaningful stockpile transformation, or provide a capability to respond to a significant technical issue in the current stockpile. If the NF were constructed, and if the existing plutonium facilities at LANL were dedicated to pit manufacturing, a pit production rate of approximately 50-80 pits per year might be sustainable for some duration.

Pit production rates are dictated by national security requirements for our strategic nuclear deterrent. The sustainability of the current approach without NF would presumably be limited by the availability of PF-4, which will be fifty years old in the mid-2020s, and is already experiencing safety and operational challenges due to its age.

Cost:

When the Department authorized the project to proceed into preliminary design for the CMRR project (both the Rad Lab and NF) at CD-1, the target cost and the upper boundary cost for the project were estimated to be $850M and $975M respectively. The FY 2007 Future-Year National Security Plan budgeted $838M for the CMRR project. The Rad Lab portion of the project has been baselined at a cost of $164M (not including its specialty equipment) and is being executed as planned. The cost and schedule baseline for the NF has yet to be established. The performance baseline for the NF would be established and validated after the Complex 2030 Record of Decision is issued, should a decision to proceed be made.

In 2006, the new management and operating contractor at Los Alamos conducted a management and technical review of the CMRR project and found that conditions had changed since development of the cost range at CD-1. Various factors such as more stringent design requirements, increased commodity prices, revised escalation rates, and increased project contingency to address schedule changes will impact the NF costs and may result in total project costs greater than $975M. A better understanding of these factors will be available after the preliminary design is delivered late in FY 2007. Future NNSA decisions about the NF will rely on higher fidelity cost data than exist today. NNSA requires establishing a fully validated cost baseline before undertaking major construction, and NNSA is scheduled to perform a Technical Independent Project Review this summer that will review the project's safety and security parameters, the technical basis of the project's scope, cost and schedule.

Summary:

The future role of the CMRR project in the defense plutonium infrastructure continues to be assessed. Its role will be determined in the Complex 2030 Record of Decision in late 2008. Pending those decisions, NNSA intends to manage program risks by:
(1) completing the CMRR Rad Lab; (2) continuing with the design of the CMRR NF, and (3) deferring a decision on whether to construct the NF until the Record of Decision.

Mello aff 3, par 50, ref 42

FY 2009 PASSBACK GUIDANCE
Department of Energy
National Nuclear Security Administration
(Dollar amounts in millions)

This document provides guidance and recommendations to the Department of Energy's (DOE's) National Nuclear Security Administration (NNSA) for the formulation of the final FY 2009 President's Budget.

DOE/NNSA appeals to this passback guidance must be submitted in writing to OMB by close of business November 29th and signed by the Secretary of Energy. ***Any requests for increases must be prioritized and offset by proposals for real discretionary budget authority and outlay savings within the agency.***

Finally, DOE/NNSA is reminded that it is required per Circular A-11, (Sections 25.5 and 25.6) to update budget exhibits, including Capital Asset Plans (Exhibit 300) and Information Technology and E-Government (Exhibit 53), after final budget decisions have been made and submit them to OMB for review in conjunction with other budget justification materials.

SUMMARY

Passback provides a total of $9,589 million for the agency's work, the same as the request. The FY 2009 passback level for DOE/NNSA is about 1.6 percent above the FY 2008 President's Budget. However, passback redistributes $100 million of the requested target funding between Weapons Activities and Defense Nuclear Nonproliferation appropriation accounts. The table below illustrates the overall intent of this passback guidance; with a more detailed table attached.

	FY 2009 Request	Passback	Delta
National Nuclear Security Administration (NNSA)			
Office of the Administrator	400.6	400.6	0.0
Weapons Activities	6,599.1	6,499.1	-100.0
Defense Nuclear Nonproliferation	1,761.6	1,861.6	100.0
Naval Reactors	828.1	828.1	0.0
Total, NNSA	9,589.3	9,589.3	0.0

Weapons Activities

The passback provides $6,499 million, $100 million less than the request. Within this amount the following guidance is provided:

Uranium Processing Facility (UPF): DOE/NNSA has assumed that the Uranium Processing Facility will be sited at the Y-12 facility, located at Oak Ridge, Tennessee. However the high costs associated with security of that site have led to the question of whether in the long run it may be more cost effective to construct this component of the 'preferred alternative for complex transformation' in another location. The Department is directed to provide a transition plan that can be evaluated to determine the most cost effective (and secure) location based on an estimate of all the costs associated with a set of alternatives. Work on the UPF in FY 2009 should be limited to site-independent design considerations. In addition, the five-year budget should reflect a total estimated cost for the UPF in the upper part of the estimated range, at the least $3.0 billion, which the Cost Analysis Improvement Group (CAIG) estimated to be a more realistic cost for the project.

NNSA Funding for Nuclear Weapons' Cores: The DOE/NNSA is requesting funding in FY 2009 for the Chemistry and Metallurgy Research Replacement Project. This facility will be used to manufacture the central core of nuclear weapons, known as the "pit." The DOE/NNSA has assumed a future production rate of 50 – 80 pits per year at Los Alamos National Laboratory, New Mexico, consistent with their preferred alternative for complex transformation. Currently there is no formal agreement between DOE and DOD on production requirements, and thus no firm basis for setting a facility production capacity requirement. This requirement is the major cost driver for the facility.

Therefore, DOD and DOE should collaborate on an analysis that determines what level of production will be sufficient to meet requirements for pit replacement in the stockpile, whether for existing designs or for the future Reliable Replacement Warhead (RRW). This analysis should also clarify the number of RRW variants that will be produced. DOD and DOE should provide this analysis to OMB not later than July 2008.

Reliable Replacement Warhead (RRW): The RRW is funded at $60 million for FY 2009 and a total of $460 million for the five-year budget period, the same as the request, but there are several major cost uncertainties. There has been no overall estimate for what the new warhead or set of warheads will cost, or what they will cost compared with the maintenance cost of continued life extension programs for the current stockpile. It is currently unclear how many distinct RRW types will ultimately be required, but it might eventually be one to one with the weapons in the current stockpile. This requirements uncertainty leads to a major uncertainty in the total program costs. DOE is therefore directed to produce, jointly with DOD, a report that specifies the number of RRW variants required, clarifies the expected costs for the development, certification, and deployment of the RRW, and estimates the effect on the transformed weapons complex of the replacement of current designs with RRW type weapons systems.

Mello aff 3, par 54, ref 43

Report of the Nuclear Weapons Complex Infrastructure Task Force

Recommendations for the Nuclear Weapons Complex of the Future

July 13, 2005
Draft Final Report

Secretary of Energy Advisory Board
U.S. Department of Energy

Due to the nature of the processes, safety and security requirements must take a priority. This is obvious a given a facility of this critical nature. Unfortunately, the manufacturing operation at TA-55 is extremely inefficient when compared with any conventional manufacturing operation. There is little evidence of modern manufacturing techniques being employed. The fundamental process design is grounded in a seriously outdated "inspect quality in" mentality. Modern manufacturing techniques including Lean Manufacturing, Six Sigma, Design of Manufacturability and Assembly, and others, if applied rigorously could yield unprecedented reductions in TA-55 pit manufacturing costs and cycle time.

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.

Lean Manufacturing techniques such as Value Stream Mapping could easily be applied to the pit manufacturing process. Fundamentally, the pit facility produces one product, yet it appears that every pit produced is a "hand crafted individual object". This method of production yields process inefficiencies in **every** operation. Additionally, process automation at several steps of this process would be quite valuable. Currently available CNC machining centers, modified for the unique safety hazards would yield a wealth of productivity gains.

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.

Mello aff 3, par 55, ref 44

Table 1. Critical Decision Authority Thresholds

Critical Decision Authority	Total Project Cost Thresholds
Secretarial Acquisition Executive	≥ $750M (or any project on an exception basis when designated by the SAE) **Further delegation is allowed.**
Under Secretaries	≥ $100M and < $750M (or any project on an exception basis when designated by the Under Secretaries) **Further delegation is allowed.**
Program Secretarial Officer	≥ $50M and < $100M **Further delegation is allowed.**

4. Requirements for Approval of Critical Decisions.

a. CD-0, Approve Mission Need.

The Initiation Phase begins with the identification of a mission-related need. A Program Office will identify a credible performance gap between its current capabilities and capacities and those required to achieve the goals articulated in its strategic plan. The Mission Need Statement (MNS) is the translation of this gap into functional requirements that cannot be met through other than material means. It should describe the general parameters of the solution and why it is critical to the overall accomplishment of the Department's mission, including the benefits to be realized. The mission need is independent of a particular solution, and should not be defined by equipment, facility, technological solution, or physical end-item. This approach allows the Program Office the flexibility to explore a variety of solutions and not limit potential solutions (refer to DOE G 413.3-17). Table 2.0 lists the requirements needed to attain CD-0.

The cost range provided at CD-0 should be Rough-Order of Magnitude (ROM) and is used to determine the AE authority designation. It does not represent the PB, which will be established at CD-2.

A capable fault is one that has had movement at or near the ground surface at least once within the past 35,000 years, or recurrent movement within the past 500,000 years (10 CFR Part 100, Appendix A). Therefore, the three major faults in Los Alamos County are considered active and capable per the U.S. Nuclear Regulatory Commission definition of the term as used for seismic safety.

3.5.1.3 Seismicity

Although the LANL region is within an intra-continental rift zone, the area demonstrates low seismicity compared to regions bordering on active continental plate boundaries such as southern California. For example, since 1973 only 6 earthquakes have been recorded within a 62-mile (100-kilometer) radius of TA-3 at LANL (USGS 2002a). In the same period, the San Francisco area experienced 1,161 earthquakes by comparison (USGS 2002b). The LANL-area earthquakes ranged in magnitude from 1.6 to 4.5 while the San Francisco-area earthquakes ranged from 1.0 to 7.1.

From 1873 to the present, 46 earthquakes have occurred within 62 miles (100 kilometers) of TA-3 at LANL (USGS 2002c). Recurrence intervals for these earthquakes ranged from same-day events to a maximum of about 20 years. The closest recorded earthquake to TA-3 occurred on August 17, 1952. The epicenter of this earthquake was located approximately 5 miles (8 kilometers) south-southeast of TA-3. This earthquake predated magnitude determination but had a reported Modified Mercalli Intensity (MMI) of V. For reference, Table A-6 in Appendix A shows the MMI scale of observed earthquake effects and compares it with measures of earthquake magnitude and peak ground acceleration. The largest recorded earthquake within 62 miles (100 kilometers) of TA-3 at LANL was the May 1918 Cerrillos Earthquake. The epicenter of this earthquake was located 31 miles (50 kilometers) southeast of TA-3 and had a reported MMI of VII. The most recent earthquake occurred on December 25, 1988, at a distance of 56 miles (90 kilometers) south-southeast of TA-3. The magnitude was measured at 2.8 (USGS 2002a).

Seismic hazard analysis demonstrates that the highest seismic hazard at LANL would be to a site built atop a trace of the Pajarito Fault (LANL 2001a). Along the Pajarito Fault system, an earthquake with a magnitude greater than or equal to 6 is estimated to have an annual probability of occurrence of once every 4,000 years. An earthquake with a magnitude greater than or equal to 7 is estimated to have an annual probability of occurrence of once every 100,000 years (LANL 1999).

Measures of peak acceleration indicate what an object on the ground would experience during an earthquake. This motion is expressed in units of gravitational acceleration (g). The hazard study of facilities in eight LANL TAs found that earthquakes having an annual probability of occurrence of once in every 10,000 years would cause a horizontal peak ground acceleration ranging from 0.53 g to 0.57 g (Wong et al. 1995). Further, the U.S. Geological Survey has developed seismic hazard metrics and associated maps that are used by the new *International Building Code*. The National Earthquake Hazard Reduction Program maps are based on the estimated natural periods of structural vibration due to earthquake activity and depict maximum considered earthquake (MCE) ground motions of 0.2- and 1.0-second spectral acceleration, respectively, based on a 2 percent probability of exceedance in 50 years (corresponding to an annual probability of occurrence of about 1 in 2,500) (ICC 2000). The three alternative sites for the CMR Building are within a 1.25-mile- (2-kilometer-) wide area. Due to their proximity, calculated MCE ground motion values for the 3 sites are identical and range from 0.19 g for a 1.0-second spectral acceleration to 0.60 g for a 0.2-second spectral acceleration. The calculated peak ground acceleration for the given probability of exceedance at the site is 0.26 g (USGS 2002d). Maintenance and refurbishment activities at LANL are specifically intended to upgrade the seismic performance of older structures. Construction of new facilities must meet DOE Standard 1020-2002 that, in part, implements DOE Order 420.1, as superseded by DOE Order 420.1A. As stated in DOE Order 420.1A, DOE requires that nuclear or nonnuclear facilities be designed, constructed, and operated so that the public, the workers, and the environment are protected from the adverse impacts of natural phenomena hazards, including earthquakes. DOE Order 420.1A, Section 4.4, stipulates the natural phenomena hazards mitigation requirements for DOE facilities and specifically provides for the reevaluation and upgrade of existing DOE facilities when there is a significant degradation in the safety basis for the facility.

During seismic events, facilities near a cliff edge or in a canyon bottom below are potentially susceptible to slope instability, rock falls, and landslides. Slope stability studies have been performed at LANL facilities where a hazard has been identified. As for other geologic hazards due to seismic activity, the potential for land subsidence and soil liquefaction at LANL are considered low and negligible, respectively.

3.5.1.4 Economic Geology

No active mines, mills, pits, or quarries exist in Los Alamos County or at LANL. Rock and mineral resources, however, including sand, gravel, and volcanic pumice are mined throughout the surrounding counties. Sand and gravel are primarily used in construction for road building. Pumice aggregate is used in the textile industry to soften material. Pumice is also used as an abrasive, for building blocks, and in landscaping. The major sand and gravel quarry in the area is located in the lower member of the Puye Formation. The welded and harder units of the Bandelier Tuff are suitable as foundation rocks, structural and ornamental stone, or insulating material. Volcanic tuff has also been used successfully as aggregate in soil-cement subbases for roads.

3.5.2 Soils

Soils in Los Alamos County have developed from decomposition of volcanic and sedimentary rocks within a semi-arid climate and range in texture from clay and clay loam to gravel. Soils that form on mesa tops are well drained and range in thickness from 0 to 40 inches (0 to 102 centimeters). Those that develop in canyon settings can be locally much thicker. Soil erosion rates vary considerably at LANL due to the mesa and canyon topography. The highest erosion rates occur in drainage channels and on steep slopes. Roads, structures, and paved parking lots concentrate runoff. High erosion rates are also caused by past logging practices, livestock grazing, loss of vegetative cover, and decreased precipitation (DOE 1999a). The lowest erosion rates occur at the gently sloping central portions of the mesas away from the drainage

Mello aff 3, par 62, ref 46

Improving Project Management in the Department of Energy

Committee to Assess the Policies and Practices of the Department of Energy to Design, Manage, and Procure Environmental Restoration, Waste Management, and Other Construction Projects

Board on Infrastructure and the Constructed Environment

Commission on Engineering and Technical Systems

National Research Council

NATIONAL ACADEMY PRESS
Washington, D.C.

Recommendation. DOE should mandate a reporting system that provides the necessary data for each level of management to track and communicate the cost, schedule, and scope of a project.

Recommendation. DOE should establish a system for managing change that provides traceability and visibility for all baseline changes. Change control requirements should apply to the contractor, the field elements, and headquarters.

Recommendation. DOE should establish minimum requirements for a cost-effective earned-value performance measurement system that integrates information on the work scope (technical baseline), cost, and schedule of each project. These requirements should be included in the request for proposals.

Recommendation. DOE, as an organization, should obtain and maintain ISO 9000 certification for all of its project management activities. To accomplish this, DOE should name one office and one individual to be responsible for acquiring and maintaining ISO 9000 certification for the whole department and should require that consultants and contractors involved in the engineering, design, and construction of projects also be ISO 9000 certified.

Recommendation. DOE should establish an organization-wide value-engineering program to analyze the functions of systems, equipment, facilities, services, and supplies for determining and maintaining essential functions at the lowest life-cycle cost consistent with required levels of performance, reliability, availability, quality, and safety. Value engineering should be done early in most projects, and project managers should take the resulting recommendations under serious consideration.

Project Planning and Controls

Finding. DOE preconstruction planning is inadequate and ineffective, even though preconstruction planning is one of the most important factors in achieving project success.

Finding. DOE often sets project baselines too early, usually at the 2- to 3-percent design stage, sometimes even lower. (An agreement between Congress and DOE's chief financial officer for establishing baselines at the 20- to 30-percent design stage is scheduled to be implemented in fiscal year 2001.)

Finding. DOE often sets project contingencies too low because they are often based on the total estimated cost of a project rather than on the risk of performing the project.

Mello aff 3, par 68, ref 48

Resource/Material Categories	*No Action Alternative*	*Alternative 1 (relocate CMR AC and MC operations to TA-55)* [a]	*Alternative 2 (relocate CMR AC and MC operations to TA-6)* [a]	*Alternative 3 (relocate CMR AC and MC operations to TA-55)* [b]	*Alternative 4 (relocate CMR AC and MC operations to TA-6)* [b]
Environmental Justice	No disproportionately high and adverse impacts on minority or low-income populations				
Waste Management (cubic yards of solid waste per year unless otherwise indicated): Waste would be disposed of properly with small impact					
Transuranic waste	19.5	61	61	61	61
Mixed transuranic waste	8.5	27	27	27	27
Low-level [f] radioactive waste	1,217	2,640	2,640	2,640	2,640
Mixed low-level radioactive waste	6.7	26	26	26	26
Hazardous waste (pounds per year)	10,494	24,692	24,692	24,692	24,692
Transportation					
Accidents [g]	***Dose***	***Dose***	***Dose***	***Dose***	***Dose***
MEI (rem per year)	7.7×10^{-7}	0	0.00015	0	0.00015

LCF = latent cancer fatality; MEI = maximally exposed individual member of the public.

[a] Relocate CMR AC and MC and actinide research and development activities to a new CMRR Facility consisting of an administrative offices and support functions building and Hazard Category 2 and 3 buildings.

[b] Relocate CMR AC and MC and actinide research and development activities to a new CMRR Facility consisting of only Hazard Category 2 and 3 buildings.

[c] Construction impacts are based on Construction Option 1, which is bounding.

[d] Acreage reflects building footprints, parking lot, and new roads as applicable.

[e] CMR operations would require no additional workers beyond what was projected by the Expanded Operations Alternative analyzed in the *LANL SWEIS*. Increased CMRR Facility operations at LANL would require up to 550 workers. This would be an increase of 346 workers over current requirements. The Expanded Operations Alternative presented in the *LANL SWEIS* addressed the impact of this increase in employment.

[f] Volumes of low-level radioactive waste include solid wastes generated by the treatment of liquid low-level radioactive waste generated by CMR operations.

[g] Population transportation impacts would be bounded by the normal operation and accident impacts evaluated for the various alternatives.

3.12.2 Transuranic Waste

Transuranic waste is generated by analytical, processing, and fabrication activities in the CMR Building at LANL. All projects generating transuranic waste are required to implement waste minimization (64 FR 50797).

As part of the implementation of the Record of Decision for Transuranic Waste (TRU) Waste Treatment and Storage, part of the *Waste Management Programmatic Environmental Impact Statement* (DOE 1997b), LANL will treat transuranic waste onsite. Most transuranic waste will be disposed at the Waste Isolation Pilot Plant (WIPP) in New Mexico. However, WIPP commenced TRU waste disposal operations in March 1999, and the preferred alternative in the *WIPP Disposal Phase Final Supplemental Environmental Impact Statement (SEIS)* (DOE 1997c) included a 35-year operating period. The WIPP disposal phase is, therefore, assumed to end in 2034. Several DOE sites, including LANL, expect to generate transuranic waste beyond 2034 as a result of ongoing missions. The National Transuranic Waste Management Plan classifies transuranic waste generated after 2034 as waste having no current plan for disposal.

The CMRR Facility would start operations in 2010 with full operations planned for 2012. The operating life of the CMRR Facility is at least 50 years. To accommodate all projected transuranic waste from the CMRR Facility and other ongoing operations, DOE would need to extend the disposal phase for the WIPP repository or develop a new transuranic waste repository similar to the WIPP. Because sufficient lead time exists to develop such a repository, and given the fact that DOE has successfully demonstrated the capability of disposing transuranic waste, this EIS assumes that a transuranic waste repository similar to the WIPP would be available.

The total volume of transuranic waste currently managed by DOE (stored and projected) is estimated to be 249,949 cubic yards (191,100 cubic meters) of which 244,194 cubic yards (186,700 cubic meters) is contact handled transuranic and 5,755 cubic yards (4,400 cubic meters) is remote handled transuranic waste. A portion of this waste will be treated or repackaged prior to disposal, and the reported volumes may change depending on the selected processing or repackaging methodology. The estimated volume to be disposed of at WIPP is 151,853 cubic yards (116,100 cubic meters), of which 148,191 cubic yards (113,300 cubic meters) is contact handled transuranic (of which about 4,185 cubic yards [3,200 cubic meters] has already been disposed), and 3,662 cubic yards (2,800 cubic meters) is remote handled transuranic waste (DOE 2002b).

WIPP's total capacity for both contact handled and remote handled transuranic waste is set at 229,676 cubic yards (175,600 cubic meters) by the *WIPP Land Withdrawal Act*. The Consultation and Cooperation Agreement restricts the quantity of remote handled transuranic waste to only 5 percent by volume. Thus, the total volume of remote handled transuranic waste cannot exceed 9,260 cubic yards (7,080 cubic meters). If the maximum allowable remote handled transuranic waste volume were disposed, the available capacity for contact handled transuranic waste would be 220,416 cubic yards (168,520 cubic meters). CMR operations at LANL are expected to generate 61 cubic yards (47 cubic meters) per year of contact handled transuranic waste. Over a 50-year time period, this would result in a total of about 3,050 cubic yards (2,350 cubic meters) of contact handled transuranic waste. Based on current transuranic waste forecasts, the available contact handled transuranic waste disposal capacity at WIPP is about 72,225 cubic yards (55,220 cubic meters). The available capacity or new capacity would be sufficient to accommodate the estimated volumes of transuranic waste from future LANL CMR operations.

3.12.3 Mixed Transuranic Waste

Transuranic waste that also contains hazardous components regulated under RCRA is managed as mixed transuranic waste. Once generated, the mixed transuranic waste generally is transferred to a satellite storage area at the existing CMR Building. Subsequent storage, bulking, and transportation operations are performed according to hazardous waste management and U.S. Department of Transportation (DOT) regulations and DOE directives. The storage, bulking, and transportation preparation activities take place at TA-54. Most mixed transuranic waste will be disposed at WIPP or a similar facility.

3.12.4 Low-Level Radioactive Waste

Radioactive wastes that contain less than 100nCi/g of transuranic radionuclides are managed as low-level waste. Solid low-level radioactive waste generated by LANL's operating divisions is characterized and packaged for disposal at the onsite low-level radioactive waste disposal facility at TA-54, Area G, or sent to off-site licensed commercial facilities for disposal. Low-level radioactive waste minimization strategies are intended to reduce the environmental impact associated with low-level radioactive waste operations and waste disposal by reducing the amount of low-level radioactive waste generated or minimizing the volume of low-level radioactive waste that will require storage or disposal onsite. A 1998 analysis of the low-level radioactive waste landfill at TA-54, Area G, indicated that at previously planned rates of disposal, the disposal capacity would be exhausted in a few years. Reduction in low-level radioactive waste generation has extended this time to approximately 5 years; however, potentially large volumes of waste from planned construction upgrades and demolition activities at LANL could rapidly fill the remaining capacity (LANL 2000a).

As part of the implementation of the Record of Decision in the *LANL SWEIS*, DOE will continue onsite disposal of LANL-generated low-level radioactive waste using the existing footprint at the Area G low-level waste disposal area and will expand disposal capacity into Zones 4 and 6 at Area G. This expansion would cover up to 72 acres (29 hectares). Additional sites for low-level radioactive waste disposal at Area G would provide onsite disposal for an additional 50 to 100 years (64 FR 50797, LANL 2000a).

The primary sources of liquid low-level radioactive waste at the CMR Building are laboratory sinks, duct wash-down systems, and overflows and blowdowns from circulating chilled-water systems, generating approximately 10,400 gallons per day (LANL 2002f) (Internal Memorandum, Estimate of CMR Flows, Prepared by Pete Worland, LANL FWO-WFM, September 25, 2002). The liquid radioactive waste is transferred through a system of pipes and by tanker trucks to the RLWTF at TA-50, Building 1. The radioactive components are treated and the resulting solids are then disposed of as solid low-level radioactive waste at TA-54, Area G. The remaining liquid is discharged through a permitted outfall that empties into

Mello aff 3, par 76, ref 51

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 2, 2009

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending January 2, 2009

Mr. Broderick was offsite this week.

Plutonium Facility: Last week, the site office issued their Safety Evaluation Report (SER) for the Documented Safety Analysis (DSA) and Technical Safety Requirements. Implementation of these documents includes upgrading the classification of the fire suppression system for non-seismically induced fires and identification of material-at-risk (MAR) limits for weapons-grade plutonium. The SER identified 13 Conditions of Approval (COAs) including the following:

- submittal of an integrated project management plan in March 2009 for the upgrades proposed in the DSA that provide a safety class active confinement ventilation system within the next 3 to 5 years;
- for the facility fire suppression system, completion of a gap analysis against NFPA 13 and 25, system adequacy analysis and TSR operability requirements – these actions are due in March 2009 with a subsequent projectized plan to address the results in May 2009;
- completion of a comprehensive Fire Hazards Analysis (FHA) that is integrated with the DSA and the identification of effective combustible loading control procedures that eliminate the possibility of a floor-wide fire – the FHA is due in June 2009 with procedures and DSA integration during the next annual update (December 2009);
- LANL shall accelerate the schedule for seismically upgrading gloveboxes – completion by the end of Fiscal Year 2011.

All of the COAs are required to be included in the site issues management tracking system. LANL is also required to submit a resource-loaded implementation schedule with a completion date of no later than the end of calendar year 2009.

Chemistry and Metallurgy Research Building (CMR): Recently, LANL submitted their evaluation of an exit strategy for the CMR Building that does not include use of the CMR Replacement Nuclear Facility (CMRR NF). The report asserts that all options evaluated given this constraint substantially increase the safety, security and programmatic risks at LANL versus the current approved baseline. Alternatives for analytical chemistry/material characterization were identified as having the largest scope, schedule and budget implications. LANL recommends additional evaluation of elevating the Radiological Laboratory, Utility, and Office Building to a category 2 nuclear facility if the CMRR NF is significantly delayed. LANL also recommends pursuing additional actions to improve the Plutonium Facility vault utilization.

To support operations at CMR beyond 2010, LANL is in the process of developing a 10 CFR 830 compliant DSA. During development of the safety basis, LANL committed to providing portions of the analysis in 3 phases. In early October, LANL submitted the second phase of the analysis. This week, the site office provided comments to LANL including better identification of MAR for accident scenarios and identification of safety class controls for assumptions that are identified during scenario development for design basis accidents.

Mello aff 3, par 79, ref 52

President. For these reasons, this alternative does not meet the purpose and need for Agency action, but is analyzed to provide a basis of comparison with the Proposed Action.

2.4 Alternative 2: Construction and Operation of New Facility at LANL

The construction and operation of a new facility was considered and DOE determined that it was not fiscally prudent (Section 1.3). However, construction of a new facility would not meet DOE's need for continued performance of uninterrupted interim and ongoing radioactive chemical and metallurgical research activities at LANL. Planning, design, and construction of a new facility would take a minimum of 10 years to complete. As noted in Section 2.3, the higher risks and lower safety margins that would exist in the CMR Building without upgrades would be unacceptable to DOE within about 5 to 10 years. Further, a new facility is estimated to cost more than twice as much as the proposed upgrades ($348 million vs. $123 million). In addition, the existing CMR Building would have to be decommissioned, incurring additional costs and wastes generated would take up space in the LANL low-level radioactive waste landfill or other permitted waste disposal system.

A new facility could disturb previously undisturbed land. New construction could potentially have adverse environmental effects upon water and air quality, biological resources, and possibly archeological resources. Because this alternative could potentially cause more environmental effects than the proposed upgrades, is estimated to cost more than twice the proposed upgrades, and would jeopardize DOE's requirement to maintain the uninterrupted operational capability to perform radioactive and chemical research, construction and operation of a new facility were not considered reasonable, and therefore, not analyzed further in this EA.

2.5 Alternative 3: Alternate Site for the CMR Building Operations at Other LANL Locations

The choice of an alternative site for CMR Building operations in existing buildings at LANL was considered. Other nuclear qualified LANL facilities where analytical chemistry operations could be performed are not of sufficient size or are currently committed to other programmatic missions. Besides CMR, the only other nuclear qualified space of sufficient size available at LANL is at TA-55; however, movement of CMR activities to the Plutonium Facility at TA-55 would displace about 50 percent of its ongoing activities.

Additionally, other existing buildings at LANL do not have sufficient safeguards and security systems or equivalent environmental and worker protection systems in place for the type of operations currently being performed in the CMR Building. For these reasons, this alternative was not considered to be reasonable and is not analyzed further in this EA.

Mello aff 3, par 80, ref 53

The Proposed Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR-NF): New Realities Call for New Thinking

Greg Mello, Los Alamos Study Group, 2901 Summit Place NE Albuquerque, NM 87106, 505-265-1200, gmello@lasg.org.

An objective study of alternatives, requiring a break in project momentum, is needed.

The first public reference to the CMRR is an announcement by Senator Bingaman's office in 1999 saying that the proposed CMRR "would not be a Taj Mahal but a scaled-down, streamlined facility that would meet the needs of the lab at a lower cost than they are met now."[1] That was then. The "needs of the lab" have greatly grown.

During the 1999 to 2004 period the Department of Energy (DOE) and the National Nuclear Security Administration (NNSA) persuaded themselves and others that a NF would be relatively quick and inexpensive. In February of 2001 Los Alamos National Laboratory (LANL) was planning a CMRR project priced at $375 million (M) *for two or more buildings* that would be complete in FY2007.[2] In February of 2004, the projected cost for CMRR, including 60,000 sq. ft. of Hazard Category (HazCat) II space and 60,000 sq. ft. of HazCat III space in a 200,000 gross sq. ft. Nuclear Facility and a separate radiological laboratory, utility, and office building (RLUOB), was $600 M, including $100 million (M) in administrative costs.

Today projected total CMRR costs are $363 M for RLUOB and a preliminary (3 years prior to baseline) $3.7 to $5.8 billion (B) for CMRR-NF, at least ten times as much as originally estimated. Gross CMRR-NF area has increased to 406,000 sq. ft. and usable space has contracted to about 38,500 (HazCat II) and zero (HazCat III), i.e. to 32% of before. Using the top estimate, HazCat II unit space cost in the new building has increased by more than a factor of 20 to $151,000/sq. ft. Lab space now costs up to $258,000/sq. ft.

The project is now not expected to be physically complete until at least 2020, a 13-year delay from the 2001 estimate and a decade later than planned in 2004. Full start-up and transition may require four additional years.

By contrast the late Cold War era PF-4 building, with 59,600 sq. ft. of HazCat II space, was completed in 1978 at a then-dollar cost of $75 M, or $251 M in today's dollars, or $4,211/sq. ft. – a factor of 61 less than CMRR-NF.

CMRR-NF maintenance costs are expected to be an order of magnitude greater than CMR, if not more.[3] Program and operating costs will be far higher as well.

In 1997, DOE presciently assessed CMRR-NF as impractical, expensive, and environmentally destructive.

> The construction and operation of a new facility was considered and DOE determined that it was not fiscally prudent…construction of a new facility would not meet DOE's need for…uninterrupted interim and ongoing radioactive chemical and metallurgical research activities at LANL. Planning, design, and construction of a new facility would take a minimum of 10 years [now 24 years] to complete….a new facility is estimated to cost more than twice as much as the proposed upgrades ($348 million vs. $123 million) [i.e. $473 M vs. $167 M in 2010 dollars]. In addition, the existing CMR Building would have to be decommissioned; incurring additional costs and [the] wastes generated would take up space in the LANL low-level radioactive waste landfill or other permitted waste disposal system.
>
> A new facility could disturb previously undisturbed land. New construction could potentially have adverse environmental effects upon water and air quality, biological resources, and possibly archeological resources. Because this alternative could potentially cause more environmental effects than the proposed upgrades, is estimated to cost more than twice the proposed upgrades, and would jeopardize DOE's requirement to maintain the uninterrupted operational capability to perform radioactive and chemical research, construction and operation of a new facility were not considered reasonable, and therefore, not analyzed further…[4]

In the years since its inception, CMRR-NF missions and costs have more than crept – they have vaulted. CMRR is not a "replacement" facility at all but rather the key new element in a rapid-response pit production complex that was thought unnecessary a decade ago.

Besides cost, schedule, and mission, many other pertinent circumstances have changed since this project began:

- Pits are now known to age so slowly as to be essentially ageless for current planning purposes. Additional aging data is presumably available, though not reported.
- Warhead retirements have created a long-lived pit/warhead cache with more reusable pits for each delivery system than are present in the deployed stockpile.[5]

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[1] Ian Hoffman, "Bingaman Seeks Funds for Design of Weapons Facility," *Albuquerque Journal North*, 4/15/99, http://www.lasg.org/Pit_Prod.htm.

[2] LANL, *Ten Year Comprehensive Site Plan*, 2/9/01: http://lasg.org/CMRR/Litigation/LANL_Master_Project_List-FY2001.pdf.

[3] "In FY14 [sic – FY2023], the CMRR facility is planned to become operational. The CMRR maintenance budget is projected at approximately 2.5% of RPV [Replacement Plant Value] to sustain its condition. One of the challenges for the Laboratory and NNSA is to provide the funds necessary to meet this new maintenance funding demand." In FY07, total LANL maintenance spending was $88 M, of which $6 M was for the existing CMR building. LANL, *Ten-Year Site Plan, FY2008-FY20017*, LA-CP-07-0039, January 9, 2007, pp. 114-115. Study Group files.

[4] DOE, *Environmental Assessment for the Proposed CMR Building Upgrades at LANL*, 2/4/97: 24, http://lasg.org/CMRR/Litigation/CMR_upgrades_EA_4Feb1997.pdf.

[5] Greg Mello, U.S. Plutonium "Pit" Production: Additional Facilities, Production, Restart are Unnecessary, Costly, and Provocative, http://www.lasg.org/CMRR/Mello_pit_recommendations_2Mar2010.pdf.

- The current "Section 1251" report plans on increasing pit production capacity at PF-4 to 60 pits/year, prior to CMRR-NF.[6] NNSA's TA-55 Reinvestment Project (TRP) is aimed at realizing this. A task force of the former Secretary of Energy Advisory Board (SEAB) estimated efficiency of PF-4 operations at 5% or less.[7] PF-4 devotes perhaps one-third of its HazCat II space to pit production. Small space increases can enable large increases in production capacity, as bottlenecks are removed.
- NNSA is also building ~ $7 B in new plutonium infrastructure at the Savannah River Site (SRS), including a facility at K Area to recycle pits into purified metal, a major portion of the pit production mission. Like the acquisition of pit production capacity, the MOX mission is poorly-justified and has no urgency. If pit production were urgent, portions of the SRS infrastructure could be repurposed, first within K Area (as upgraded), and in a greater emergency within MFFF.
- Pit manufacturing makes and assembles ~ 2 plutonium parts. All other parts, and final assembly, do not require a HazCat II facility. Metal production need not take place at the same site or facility and in the past sometimes has not.
- Replacement warhead proposals were replaced with a policy prejudiced against pit replacement, leaving CMRR-NF without a compelling *raison d'etre*. There is no confident certification path for physics packages with replacement components, in contrast to life extension programs (LEPs) without that replacement. Non-nuclear LEPs can be conducted indefinitely with confidence. Pit production is counter-indicated as well as unnecessary.
- Belatedly-acknowledged requirements for safety-class systems have doubled overall CMRR-NF floor area and increased excavation depth by a factor of 2.5 or more. In 2009 NNSA stated CMRR-NF might be economically infeasible with these new standards.[8] It might be.
- Estimated frequency, magnitude, and acceleration from large earthquakes at LANL have dramatically increased, requiring extensive mitigation, including replacement of a 50-60 ft. geological stratum with concrete with attendant environmental and program impacts, costs, and delays. Seismic upgrades to CMR wings, including buttresses as previously planned, may however still be quite feasible.
- Over 19 years, DOE and then NNSA have never left the Government Accountability Office's (GAO's) Watch List for poor project management. NNSA, seeking to vest Congress in this project prior to the advent of increased fiscal discipline and/or accountability, now proposes to evade DOE's project management orders in multiple ways: by using a design-build process inappropriate to such a unique, high-risk facility; by dividing the project into five "chunks," each of which is proceeding on its own timeline as if it were a separate project; by evading National Environmental Policy Act (NEPA) compliance by proceeding with detailed design without an environmental impact statement (EIS) that objectively considers all non-CMRR-NF alternatives; and by limiting the scope of internal business-case reviews. The threat to seek up-front full project funding is an admission of perceived project instability and management risk.
- Since CMRR-NF was conceived the national security context has dramatically changed, impacting not only its relative national security value but also its likelihood of successful completion and subsequent safe operation. Financial instability, stagnant-to-negative real growth, looming inadequacies and/or high prices in oil supplies, climatic change with attendant impacts on society -- these and other looming crises cast a harsh light on gratuitous nuclear weapons investments. In this austere, even existential situation, DOE and Congress must choose between security investments. For example, ~ $6 B (for CMRR-NF and connected projects), if used as a 20% wind energy subsidy, would build ~ 12 GW of wind generating capacity with an average capacity factor of ~ 0.33 or more. Compared to coal this would save ~ 2×10^{10} lbs C emissions/yr and prevent ~ 500 deaths annually from air pollution. About 9,700 direct construction jobs and 1,554 long-term jobs would be created; ~ 6.6 billion gallons of fresh water would be saved annually.[9] Industries and skills would be developed, with long-term security and economic benefits. What marginal security benefit from CMRR-NF, assuming there is any, could ever measure up?
- CMRR-NF has been justified on grounds of maintaining (i.e. improving the low) morale at LANL. It is likely to have the opposite effect, especially as regards science.
- The advent of CMRR-NF halted seismic and most other upgrades at CMR on the theory that replacement was imminent. Since then CMR has been run toward failure, its safety problems insufficiently addressed. CMRR-NF has been and remains a potent cause of safety problems at LANL's nuclear facilities.
- NNSA's managers and advisors must avoid the pitfall of spending money and building huge facilities just for the sake of doing so, or as part of a political deal.

Please write or call for further information, or see http://www.lasg.org/CMRR/open_page.htm.

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[6] NNSA, *FY2011 Biennial Plan and Budget Assessment on the Modernization and Refurbishment of the Nuclear Security Complex Annex D*, Table D-2.

[7] SEAB Nuclear Weapons Complex Infrastructure Task Force, *Recommendations for the Nuclear Weapons Complex of the Future*, July 2005, pp. H-5,6

[8] "The [NNSA's] CMRR Nuclear Safety Design Strategy…states that it may not be economically feasible to seismically design and qualify some components of the active confinement ventilation system or its support system to PC-3 seismic design requirements." DNFSB, letter to NNSA, 1/16/09. (CMRR certification), http://www.hss.energy.gov/deprep/2009/FB09J16A.pdf.

[9] DOE, "Economic Benefits, Carbon Dioxide (CO2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in New Mexico," at http://www.windpoweringamerica.gov/astate_template.asp?stateab=nm.

<u>Table 1: All but one mission proposed for CMRR-NF could be done in multiple ways by renovating existing facilities. That mission – prompt large-scale pit production – is very costly, would erode stockpile confidence, is unsupported by current policy, and may be impossible.</u>

(The suggested reasonable mission assignments below create *primary* CMRR-NF alternatives. *Secondary* alternatives would build a *different* CMRR-NF, e.g. smaller. *Tertiary* alternatives would build a CMRR-NF *in different ways.* Up-front and contingent assignments are both shown.)

Site and Facility (■ signifies possible use, without necessarily an endorsement; ■? signifies possible use with greater uncertainty as to reasonableness; for ◊, □, and * see notes below)

CMRR-NF Mission Elements Most of these are far from clarified at present. Some are of very dubious value (e.g. larger pit production capacity). This list includes waste disposal, including disposal of demilitarized pits.	**LANL**								**SRS**		**LLNL**		**INL**	**NTS**		**DoD**	
	PF-4	**RLUOB**	**Upgraded CMR, 1 to 4 wings: 9**	**7**	**5**	**3**	**Sigma**	**Other**	**K Area**	**MFFF**	**Super-block**	**Pantex**			**Industry**		**WIPP**
1. Pit production capacity 50 - 200 pits/year Inherent single-shift capacity of one pit production line – all that is needed – is assumed to be ~ 50 pits/year or ~ 80 pits/year with two shifts. Larger capacities require relatively modest additional space. More facilities may be needed under some alternatives. See "primary alternatives" in notes for more on contingent new production capacity in existing facilities, delayed acquisition of new capacity, enhancements of existing facilities, and clearer pit and stockpile policies.																	
a. Receive, inspect, assay, and store old pits	■		■	■	■				■	◊	□		■?				
b. Disassemble old pits	■		■	■	■				■	◊	□		■?				
c. Recover, process, and prepare metal	■			■	■				■	◊	□		■?				
d. Cast and machine new plutonium pit	■									◊	□		*				
e. Fabricate other pit components							■	■?					■		■		
f. Measure and certify components	■			■	■	■	■	■?		◊	□		*		■		
g. Assemble new pit	■			■	■	■	■	■?		◊	□		*				
h. Ship or store new pit				■	■	■	■	■?	■	◊	□		*				
i. Recover scrap and residues	■			■	■	■			■	◊	□		*				
2. Pu storage																	
a. (Additional) working storage for pit production	■								■		□						
b. (Additional) long-term storage (see also 9a.)	■								■			■	■	■		■	
3. "Analytical chemistry" (will be moved to RLUOB)		■				■		■	■?	◊							
4. "Materials characterization" (already moved to PF-4)	■	■	■	■	■				■?	◊	□						
5. Hot cell activities (not proposed for CMRR-NF)			■														
6. Large vessel preparation and cleanout (now in Wing 9)			■	■	■									■			
a. Purification of Pu-242 or other materials if necessary	■			■	■												
7. Pit production technology development if necessary	■									■	■		■				
8. Other HazCat II plutonium missions	■		■	■	■				■	■	■		■				
9. Nuclear waste disposal																	
a. Pits (as demilitarized, vitrified Pu, or via MOX)			■	■	■				■	◊		■		■			■
b. Other Pu (TRU, LLW) waste disposal								■	■				■?	■	■		■

Table 1 (continued). Notes (1): Primary alternatives to CMRR-NF include but are not limited to the following, with variations:

1. **Upgrade and use from one to three CMR wings**, with Wing 9 and supporting systems remaining in any case; combine with appropriate other facility use and underlying policy decisions as appropriate; several options are possible. Structural upgrades, including buttresses, as augmented from previous plans may be feasible and if so be economic, rapid, and incur less program impact, risk, and CMR D&D.
2. **Delay decision** on CMRR-NF, possibly pursue later if needed, thus deferring high maintenance expenses (~2.5% of capital cost per annum, i.e. ~$145 M/yr) and other operating expenses and thus saving net present value even if design re-start costs are considered, while at the same time minimizing risk of unneeded capital investment.
3. **Contingent pit production** centered at LANL but possibly also involving other sites for higher production rates; establishes priorities for redirecting existing Pu HazCat II/III space (as renovated independently) and otherwise-planned capacity under specified conditions. Many variations are possible.
4. **Internal physical and/or programmatic modifications at PF-4, possibly including moving Pu-238 work to existing and new facilities at INL**, liberating PF-4 space. Indirect INL enhancement of PF-4 capability is indicated by * above.
5. **Enhance facilities at other sites for pit production mission elements**, e.g. the K **Area** Complex at SRS, or INL, for pit recycling, metal production, (steps a. – c. above), and for Pu and pit storage.
6. **RLUOB modifications**, e.g. to HazCat III or higher for specific uses, or possibly for transient or sporadic uses, or as an element of contingency plans.
7. **Use LLNL Superblock as a HazCat II facility as part of contingency plans,** indicated by □ above.
8. **Planned contingent redirection of parts of MFFF** for pit production elements or to take missions from PF-4 as indicated by ◊ above.
9. **Clarify pit policies**, e.g. establish policies of a) **LEPs without pit production**, with non-intrusive cross-type pit reuse (Pantex) as back-up in selected cases; **(b) keep a retired warhead and/or pit bank**; **(c) abjure attempted certification of new-design pits or replacement warheads**; **(d) limit required pit production rate**; **(e) require only one production line**; **(f) retire some pit types** (e.g. W88); and **others**.

Evaluate alternatives for: effectiveness in maintaining *the existing* stockpile; cost; management risk; implementation speed; environmental impact; morale; and diplomacy.

Prompt, large-quantity pit production without commandeering non-pit space at PF-4 and elsewhere should be evaluated separately given its uniquely large, dominating infrastructure demands and lack of justification in current policy.

Notes (2): The assumptions used for all the primary alternatives at left, which include any "no action" under NEPA, are roughly:

1. RLUOB is completed as planned; The TA-55 Reinvestment Project (TRP) proceeds as described in DOE's FY2011 Budget Request.
2. All outstanding safety and seismic issues are promptly and successfully addressed at PF-4 and supporting facilities. This may not be easy, raising systemic safety and efficiency questions affecting CMRR-NF.
3. Successful interim safety upgrades and safety-related interim operational changes are made in all operating CMR wings under all circumstances, even if CMR is to be torn down in the 2023-2026 timeframe. These upgrades can be done faster, with more confidence, and far more cheaply than CMRR-NF construction.
4. CMR wings 1, 2, and 4, which lie on and near an active earthquake fault, and which are not needed now, will not ever be used, and will be maintained in "safe standby" pending disposition, which can proceed.
5. The LANL RLWTF is upgraded as needed; adequate solid radioactive waste management facilities are provided; and other supporting infrastructure needs at LANL are met.
6. A fully-functional production pit line is set up, staffed, and operated at PF-4, with provision for contingent expansion at critical bottlenecks. This does not require stockpile production. Right-size the program.
7. Under sufficient need to prioritize production and improve management, and with needed renovations and time for re-tooling in proportion to need, PF-4 could produce up to 125 pits/yr, single shift, or 200 pits/yr with two shifts. Front-end work (a. – c. above) could be done at K Area, SRS.
8. MOX fuel PuO2 production at PF-4, if (uselessly) begun, is concluded prior to any large-scale production, liberating space.
9. Existing facilities (specifically PF-4 and needed CMR wings) can be fully upgraded for at least 20 more years of life, which provides 5-10 years of decision time to evaluate any future CMRR-NF need. Quite likely upgrades can be planned (as previously) to last for 30-40 years with appropriate maintenance. Solid safety investments with near-term benefits are valued highly. Projects with contingent need which can be built within a warning horizon should be deferred.
10. Relative life-cycle present-value costs of alternatives matter, and should be minimized where possible.
11. Stockpile pit surveillance and pit longevity studies are continued and enhanced as necessary.

Mello aff 3, par 81, ref 54 & 82

CMRR-NF Supplemental EIS Scoping Meeting October 19, 2010 / White Rock Town Hall, White Rock, NM		
Written Comments (transcribed)		
061	Joni Arends	The meeting format does not work. One of the purposes of the scoping meeting is for the public to hear the concerns of other community members. The people of N. NM have a strong oral tradition where people learn by listening to others. We request a "classroom" type format, such as that used during the draft document hearing process. A format which does not facilitate such opportunities stifles the democratic process. How do we obtain copies of the posters? I would appreciate color copies be provided at scoping meeting in Pojoaque in an 8 ½ x 11 or 8 ½ x 14 format. We request a 30 day extension of the comment period. We request public scoping meetings in Albuquerque, Santa Fe, and Taos during the 30 day extension of time to provide comments.
Comments Entered in the Computer		
082	Ms. Jody Benson	Socio-economic considerations: The County is currently exploring developing all County, as well as School-owned green space for housing. It is critical that the County knows as soon as possible the number of the proposed work force who would be from out of the area and who would actually require housing. We also need to know what the wages would be: heads-up--housing in Los Alamos is extremely expensive. Los Alamos government needs to know what housing (temporary/permanent/income-level) to focus on in our development. Also, the Schools need to know this information; wages would certainly determine where the families would live, and therefore direct the schools for their own educational specifications. In addition, it is critical that the project first seeks to employ people from N. NM, rather than importing workers from elsewhere. The project can inform the communities of what skills will be required, and then the local educators and governments can encourage the local colleges to train workers to what the projected jobs will be. A partnership between the project and the local leaders will be essential to economic and social development of the region. ENVIRONMENTAL: The proposed parking in Sandia Canyon for the crafts and trade workers where they would transfer to busses for transport to the work site; if the workers are to be bussed, and many would not live in Los Alamos, then a regional transit/parking area would protect the canyon, save the commuters gas, and if parking were around a commercial area (i.e., Pojaoque) increase the business in that area. The ideal parking would be to share parking (pay the business--Casinos, for example), rather than increase parking that would not be necessary after the project terminates. Supporting regional transit--for example, including a transportation plan in the budget, would be important.
074	Dr. Richard Martin	Having viewed a number of posters and spoken to several topic experts about the CMRR (CMR replacement) facility this afternoon and evening (3:30 to 6:30 on 10-19-10), I am very favorably impressed. I am impressed by the presentation, expertise of the staff answering questions, and impressed by the available methods for public feedback. This is an example of DOE getting the process right, namely, using a more informal opportunity for the public to provide initial input to an SEIS. Good job!

This comment was sent by email, not typed in as stated

#	Name	Comment
006	David Torney	Los Alamos Lab is the wrong location for a plutonium plant. You may find it expedient, but there are too many people nearby. DOE has locales suitable for a plutonium plant, for instance, the Nevada Test Site. The lab already contains superfund sites, and, rest assured, until the mess you already made is cleaned up, you won't be allowed to build anything there. If this plant is the sine qua non for Los Alamos Lab, then close it. As you will soon find out, no longer will patrons of nukes in Congress cram things down our throats which aren't good for us -- or for the environment.
007	Richard L. Geddes	**Comments on Supplemental EIS for the Nuclear Facility Portion of the CMR Building Replacement Project** The four alternatives proposed in the NOI do not represent a comprehensive set of alternatives, or even a reasonable range of alternatives as required by NEPA legislation. In the period (more than a decade) since the original Record of Decision of the Stockpile Stewardship and Management Programmatic Environmental Impact Statement assigning responsibility for pit manufacturing to Los Alamos, it has become clear that LANL has no capability to produce more than a demonstration quantity of pits without major construction. The 1996 ROD selected LANL for pit manufacturing because the capability to produce up to 50 pits per year there would be cheaper than anywhere else, *("construction costs for providing a limited pit fabrication capacity (50 pits/yr) are less at LANL ($310 million in 1995 dollars) than at SRS (about $490 million)"*, and faster, *"the LANL capability would be in place at least two years earlier"* Despite the fact that costs to establish this capability are now more than 20X what was used to inform this decision, and the schedule to have capability to manufacture more than a handful of pits per year is still decades away, NNSA continues to pursue this elusive dream. Now all it takes is constructing CMRR-NF. According to the 2008 Complex Transformation EIS ROD - "With a new CMRR–NF providing support, the existing plutonium facility at LANL will have sufficient capability to produce between 1 and 80 pits per year." NNSA says it is necessary to spend another $5 billion or more, on top of the billions spent since 1996, then maybe in 15-20 years we will have limited pit manufacturing capability. However this capability will still be reliant on aging and suspect capability in PF-4, a facility needing substantial future upgrades and compensatory measures to achieve adequate levels of safety, security, and environmental protection, much less operational capability and reliability. Alternatives for this Supplemental EIS considering only variations of CMRR at LANL to create pit manufacturing capability are ignoring what most external observers, probably including NNSA officials off-the-record, would admit – Trying to make the Los Alamos National Lab and its research facilities a pit manufacturing plant was a bad idea from the start. Cost and schedule figures were biased for political purposes. The true story is emerging and in NEPA space leads to the conclusion that a **valid analysis needs to reopen the decisions of the Programmatic documents and consider non-LANL options for pit manufacturing.**
008	Elizabeth Lerer	I am a Southern California resident and love when I have the opportunity to visit beautiful New Mexico. I am emailing you now as an individual concerned with how tax payer dollars are used in the United States. Quite simply, a supplemental environmental impact statement appears to be a waste of time when the scope of the CMRR-NF project has undergone vast changes since the original impact statement was produced . These changes have so altered the original CMRR project that an entirely new environmental impact statement is what is needed. Can we do a better job honoring our people, our land, our ecosystems that we love and choose to take care of? Please consider insisting on a fresh environmental impact statement that accurately reflects what you are asking the American tax payers to fund and what the people of New Mexico will be forced to live with.

UCRL-LR-125078

Mello aff 3, par 83e, ref 55 & 56

Plutonium Pit Manufacturing Unit Process Separation Options for Rapid Reconstitution

A Joint Position Paper of Lawrence Livermore National Laboratory and Los Alamos National Laboratory

Mark M. Hart
Lawrence Livermore National Laboratory

Warren T. Wood and J. David Olivas
Los Alamos National Laboratory

September 6, 1996

Lawrence
Livermore
National
Laboratory

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Plutonium Pit Manufacturing

Unit Process Separation Options for Rapid Reconstitution

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Plutonium Pit Manufacturing

Unit Process Separation Options for Rapid Reconstitution

A Joint Position Paper of the
Lawrence Livermore National Laboratory
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September 6, 1996

Scope

This document addresses technical issues regarding the manufacturing processes involved in making plutonium pits. It addresses acceptable approaches from a technical standpoint as to how the manufacturing processes can be separated and distributed among different manufacturing sites. Site selections, costs, and intra-site transfers are not addressed in this document.

Introduction

At the request of the Department of Energy Albuquerque Office, Lawrence Livermore National Laboratory and Los Alamos National Laboratory have analyzed the plutonium pit manufacturing process. The nuclear design labs (Labs) have determined logical break points in the manufacturing process where the sequence can be separated among sites without inherently jeopardizing product quality.

Production of pits can be broken up into two major component categories, non-nuclear and nuclear. At the completion of the manufacturing process, the components are integrated into a single unit. Non-nuclear components, either unclassified or classified, are relatively easy to handle, ship, and receive. They are relatively chemically inactive, in that they are unlikely to oxidize or undergo surface chemical reactions that would affect the quality or usefulness of the part. They are not radioactive, decreasing shipping requirements and making them relatively easy to inspect when received. Non-nuclear parts can be manufactured at existing DOE facilities or outside commercial facilities.

Nuclear components are by definition radioactive and typically exhibit chemically active surfaces, which can lead to surface corrosion and oxidation. Every step that potentially exposes nuclear materials to a non-inert environment can influence the quality and usefulness of the part in successive production steps.

The radioactivity and chemical reactivity of the product necessitates approved packing procedures, approved shipping containers, and special procedures when shipped, to facilitate any receiving inspection requirements. The following issues are common to each site engaged in process transfers:

- Transfers between manufacturing sites will require approved shipping containers for the items shipped.
- Transfers between manufacturing sites will require approved packing, unpacking, and inspection procedures.
- Transfer activities will affect worker ALARA radiation dose.
- Transfers will require nondestructive analysis, plutonium measurements on the shipping and receiving ends.

Discussion

The main pit manufacturing operations (excluding non-nuclear operations) are shown in Figure 1. These are:

- Disassembly - the dismantling of a plutonium pit assembly
- Metal Preparation - removal of the americium and purification of the plutonium metal
- Foundry Operations - melting, casting, and heat treating plutonium metal parts to be machined
- Machining - removing extra metal from the cast part to the final dimension
- Assembly - joining all parts to make a complete pit
- Post Assembly - final treatment and closure of the pit

The pit manufacturing process steps listed have been evaluated in terms of whether it is technically possible to **complete a given step** at one site and transfer it to the next process step at another site. Table 1 shows the pit manufacturing process steps that were considered for partitioning between manufacturing sites. The table shows:

(1) the unit operations,
(2) if splitting the manufacturing process after the completion of a listed unit operation is technically possible,
(3) support operations which are necessary at the site carrying out a given unit operation, and
(4) the Labs' recommendation on whether splitting the process at the completion of the step is acceptable.

The Labs' recommendations are based on the pros and cons associated with separating the sequence of unit operations. These pros and cons are listed in Appendix A.

It can be seen that it is technically possible to break the pit manufacturing process into a number of transfers among sites. However, history has shown that transfer after certain process steps may not be technically reasonable, feasible, or acceptable to both nuclear design laboratories.

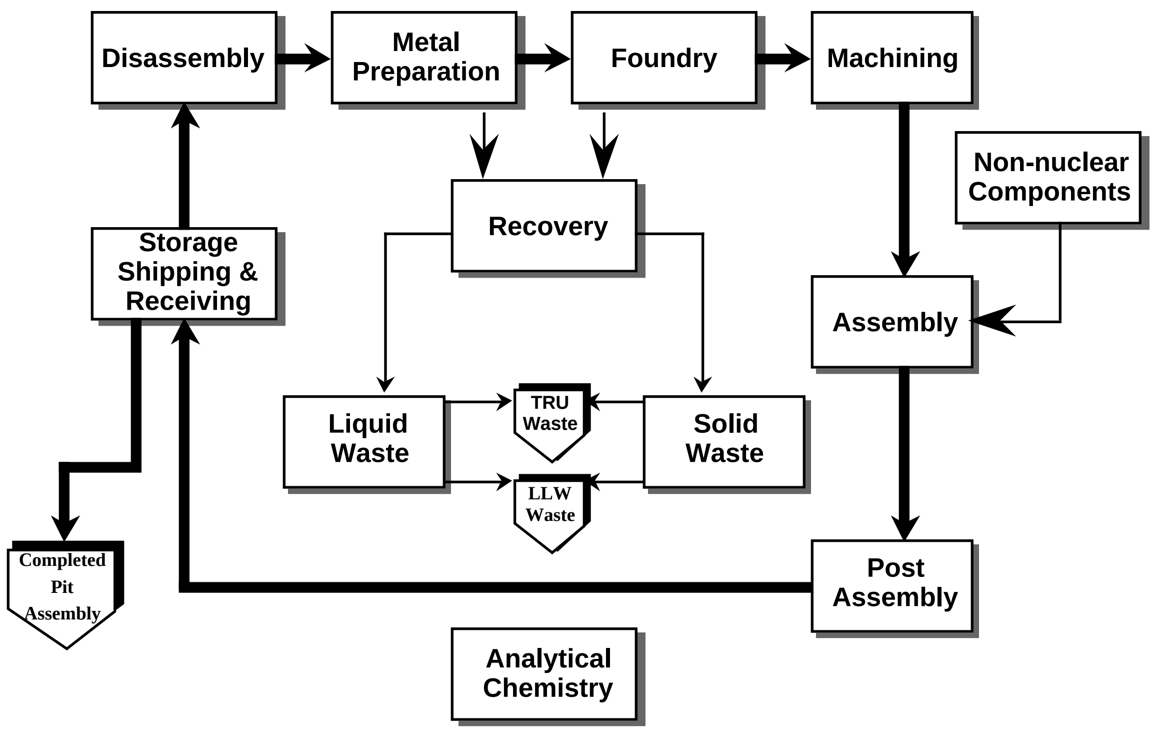

Figure 1

Pit Fabrication Flowsheet
(taken from LANL document: NMSM:96-097, July 26, 1996)

Table 1

Process Separation Under Rapid Reconstitution

(1) **Completion of listed step and transfer to next process step:**	**(2)** **Technically Possible**	**(3)** **TRU support operations for process step †**	**(4)** **Acceptable to both nuclear design laboratories**
Disassembly			
Pit dismantlement	yes	1, 2, 3, 4	yes
HYDOX - hydride and oxidize to plutonium oxide	yes	1, 2, 3, 4	yes
HYDEC - hydride and reduce to metallic plutonium	yes	1, 2, 3, 4	yes
Metal Preparation			
Reduction of plutonium oxide to plutonium metal	yes	1, 2, 3, 4	yes
Plutonium purification	yes	1, 2, 3, 4	yes
Americium extraction	yes	1, 2, 3, 4	yes
Foundry			
Foundry - cast plutonium feed ingots	yes	1, 2, 3, 4	yes
Foundry - cast plutonium components	yes	1, 3, 4, 5	yes
Machining plutonium components*	yes	3, 4, 6	no
Non-nuclear Components Coating	no	none	no
Assembly			
Assembly & Welding	yes	3, 4	no
Bonding	yes	3	no
Post Assembly	yes	3	yes

† 1) Plutonium analytical chemistry; 2) Plutonium recovery; 3) LLW handling; 4) TRU waste handling; 5) Plutonium metallography; 6) Radiography. Non-nuclear support requirements are not listed.

* Will require provisions for safely handling plutonium metal turnings by either (1) briquetting and melting into metal ingots or, (2) calcining into oxide powder.

Conclusion

The Labs agree that the ideal approach to pit manufacturing would have all manufacturing operations at one location. This would enable single-point responsibility and authority over all manufacturing operations, and would minimize duplicating support operations such as analytical chemistry, plutonium recovery, and waste handling. In the event that this ideal approach cannot be accommodated, it is technically possible to separate the manufacturing sequence between most unit operations with the exception of non-nuclear component coating, which must remain at the same site as assembly. However, from the standpoint of successfully accomplishing the pit production mission, the options are constrained.

Based on the analysis of the advantages and disadvantages associated with splitting the pit manufacturing processes between sites, the Labs make the following recommendations for feasible process separation, designated by broken lines in Figure 2.

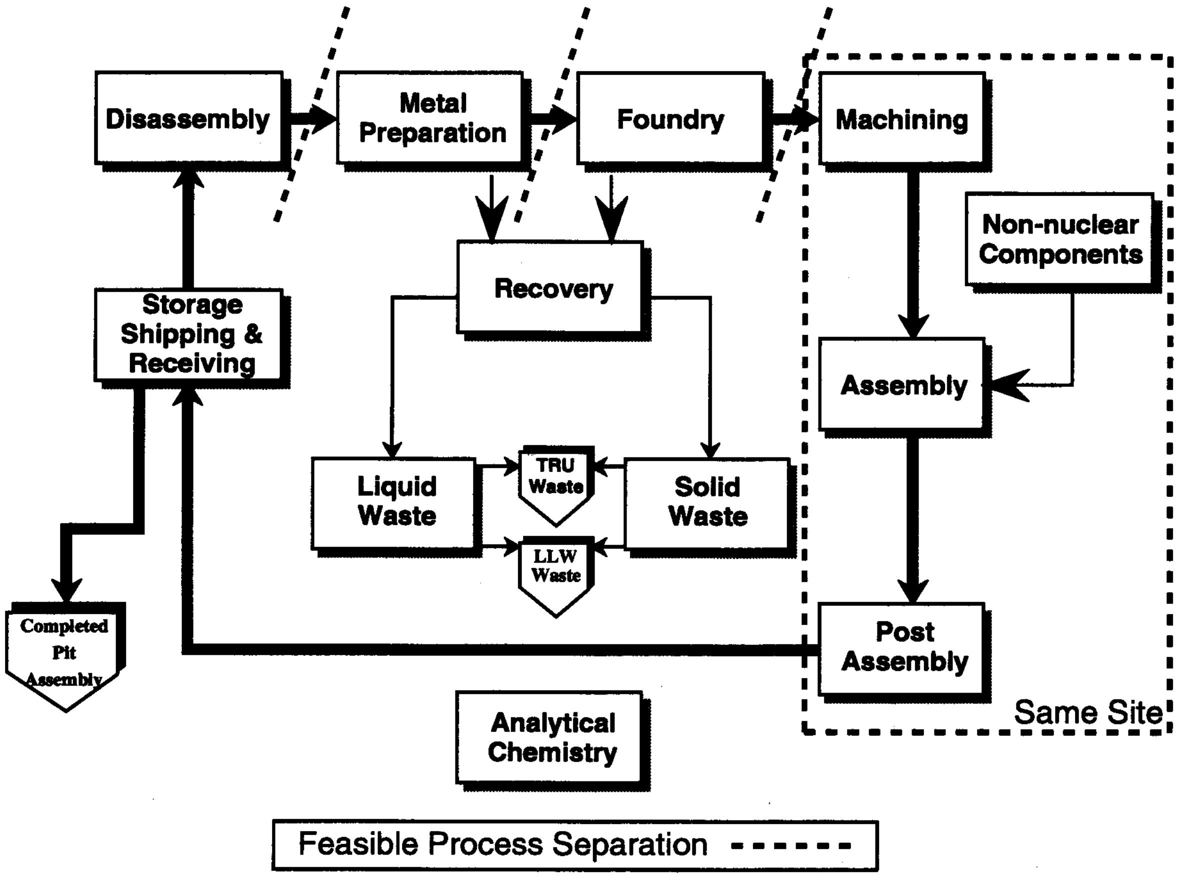

Figure 2

Laboratory Recommendations

The following processes can be completed at one site and handed off to another site without jeopardizing product quality:

- Pit dismantlement
- Hydride and oxidize to plutonium oxide
- Hydride and reduce to plutonium metal
- Reduction of plutonium oxide to metal
- Plutonium purification
- Americium extraction
- Foundry - cast plutonium feed ingots
- Foundry - cast plutonium components

To ensure product quality, the following processes must be completed sequentially at the same site:

- Machining of plutonium components
- Non-nuclear components coating
- Assembly & welding
- Bonding
- Post assembly

Though this analysis is not directing how the processes be located among sites, it can be seen that there is an advantage to locating processes requiring like support operations either at one site, or sites already possessing those capabilities. For example, economies would be achieved by locating operations requiring analytical chemistry and plutonium recovery (those operations listed in Table 1, footnoted 1 and 2 in the third column) at a single site or at sites possessing those capabilities.

APPENDIX A

EVALUATION OF PROS AND CONS ASSOCIATED WITH SPLITTING PIT MANUFACTURING OPERATIONS AMONG SITES

The following table provides more information on the technical advantages and disadvantages associated with locating pit manufacturing operations at more than one site. Based on the technical advantages and disadvantages, an assessment was made as to whether or not the manufacturing process should be split between particular operations.

A general con associated with splitting the manufacturing operations at any point is the need to transport the SNM between sites. This may result in higher costs due to the additional packaging, waste generation, and accountability measurements. The increased number of times that SNM is handled will increase worker population exposure to radiation.

Disassembly - Pit Dismantlement

PROS: Dimensional quality of dismantled pit is not important. No damage of any consequence should occur to the product during handling or transit.

CONS: None noted

EVALUATION: Acceptable - no effect on product quality.

Disassembly - Hydride and Oxidize to Plutonium Oxide (HYDOX)

PROS: No damage of any consequence should occur during handling or transit.

CONS: None noted

EVALUATION: Acceptable - no effect on product quality.

Disassembly - Hydride and Reduce to Plutonium Metal (HYDEC)

PROS: No damage of any consequence should occur to the product during handling or transit. Working with a metal product does not use calcination as a process step. There is no requirement for high purity at this stage.

CONS: None noted

EVALUATION: Acceptable - no effect on product quality, metal easily packed and measured.

Metal Preparation - Reduction of Plutonium Oxide to Metal

PROS: No damage of any consequence should occur to the product during handling or transit. Working with a metal product does not use calcination as a process step. There is no requirement for high purity at this stage.

CONS: None noted

EVALUATION: Acceptable - no effect on product quality. Metal easily packed and measured.

Metal Preparation - Plutonium Purification

PROS: Shipping of purified plutonium has taken place between the Savannah River Plant, Rocky Flats Plant, Lawrence Livermore, and Los Alamos in the past without incident.

CONS: None noted

EVALUATION: Acceptable - no effect on product quality. Metal easily packed and measured.

Metal Preparation - Americium Extraction

PROS: Shipping of purified plutonium has taken place between Savannah River Plant, Rocky Flats Plant, Los Alamos, and Lawrence Livermore in the past without incident.

CONS: None noted

EVALUATION: Acceptable - no effect on product quality. Metal easily packed and measured.

Foundry - Cast Plutonium Feed Ingots

PROS: Redundant foundry system and expertise will be present in the complex. This provides back-up capability.

CONS: Duplicate foundry and expertise in the complex increases costs.

EVALUATION: Acceptable - no effect on product quality. Metal easily packed and measured.

Foundry - Cast Plutonium Components

PROS: Cast parts have been shipped during R&D operations between Los Alamos and the Rocky Flats Plant. Also, facilities to support plutonium analytical chemistry and metallography should only be required at the foundry facility.

CONS: There is a need for a foundry and/or a calcining operation to handle plutonium turnings at machining site. Calcining of the turnings is the least desirable option because of the need for an additional recovery step to convert the oxide back to metal. Foundry operations must be able to accommodate handling oxide and crucible skull from the melt operations.

EVALUATION: Acceptable - no effect on product quality. Provisions must be made to pack the cast components in a manner that provides protection from damage due to physical impact or surface corrosion.

Machining

PROS: Machined parts have been shipped during R&D operations between Los Alamos, Rocky Flats Plant, and Lawrence Livermore.

CONS: Minor damage to high-tolerance parts will increase scrap.

EVALUATION: Machining is the first step in a series of processes that cannot be separated. It is unacceptable to have the following process located at another site. Product quality and process yield can be easily jeopardized. Very small changes in the dimensions of the finished machined part can cause scrap.

Non-nuclear Components Coating

PROS: None noted

CONS: Coating quality degrades with time.

EVALUATION: It is unacceptable to have assembly and welding located at another site. Product quality and process yield can be easily jeopardized.

Assembly and Welding

PROS: None noted

CONS: Interruption of process flow at point prior to sensitive operation.

EVALUATION: For applicable pits, completing the bonding process on a timely basis is of highest priority.

Bonding

PROS: None noted

CONS: Interruption of process flow at point prior to sensitive operation.

EVALUATION: Getting the pit to its final sealed configuration on a timely basis is of highest priority.

Post Assembly

PROS: Diamond stamped pits have been shipped between the Rocky Flats Plant and Pantex.

CONS: None noted

EVALUATION: It is acceptable to ship the finished pit to another site after completion of this operation.

Technical Information Department • Lawrence Livermore National Laboratory
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Mello aff 3, par 85, ref 57

Bingaman Seeks Funds For Design of Weapons Facility

4/15/1999

By Ian Hoffman
Journal Staff Writer

Sen. Jeff Bingaman is pressing for design of the nation's first new plutonium- and weapons-research facility in more than 20 years.

Bingaman, D-N.M., is seeking $5 million in year 2000 defense funds to design a replacement for Los Alamos National Laboratory's troubled Chemistry and Metallurgical Research building.

Nuclear-disarmament advocates are likely to mount vigorous opposition. They argue a new weapons lab for Los Alamos is just as unnecessary now in the wake of the Cold War as in 1990, when Congress killed lab plans for a $385 million Special Nuclear Materials Laboratory.

"It's like a horror movie: It keeps coming back," said Greg Mello, head of the Santa Fe-based Los Alamos Study Group. "There's nev-

See BINGAMAN on PAGE 3

Bingaman Seeks Funds for Design of Weapons Facility

from PAGE 1

er a stake through the heart. When will we wake from the 'Night of the Living Dead' ideas?"

So far, the lab's owners at the U.S. Department of Energy are undecided on seeking a new nuclear-weapons lab for Los Alamos and plan to study the issue for another year. Meanwhile, the DOE plans to continue spending $125 million to keep the CMR, as the building is called, running through 2010.

Inside CMR, scientists and engineers work on nuclear-weapons parts, as well as perform tests for the lab's environmental and cleanup programs. At times, CMR has hosted high-level nuclear waste, tests on nerve gases and a variety of other defense projects.

"There are problems with that building," said Bingaman spokeswoman Kristen Ludecke. "It's not an emergency, but it's a question of whether it would be cost-effective to build a new facility."

With the $5 million, engineers and architects could begin sketching out a rough size and design for the new lab, she said.

"This would not be a Taj Mahal but a scaled-down, streamlined facility that would meet the needs of the lab at a lower cost than they are met now," Ludecke said.

The 1950s-vintage CMR, once the largest building in New Mexico, is a massive holdover of the Cold War that has frustrated efforts to extend its working life. Besides outdated systems — electricity, fire and ventilation — CMR is more contaminated than lab managers once thought. Renovations in 1996 and 1997 ran at least $15 million overbudget and, combined with unsafe building operations, caused lab managers to shut down work at CMR for months.

Last year, geologists found yet another problem: An earthquake fault lies under a third of the building.

Officials of the Defense Nuclear Facilities Safety Board, an oversight agency for the nuclear-weapons complex, say the U.S. Department of Energy should find a new place for its work with weapons-grade plutonium and uranium at the CMR building.

Energy Department and Los Alamos executives say CMR's primary work — analytical chemistry on nuclear-weapons materials — is a unique function that must be replaced.

Critics such as Mello counter that CMR is mostly empty, a building in search of work to justify its existence.

"We've never seen what is going on in the CMR building that needs to be replaced. It's a collection of empty space and projects that don't need to be there," he charges.

Before building a new weapons lab, Mello said, the government should evaluate its current plutonium facilities as well as new ones proposed for Savannah River Site.

In 1990, Bingaman actually had a hand in the demise of LANL's Special Nuclear Materials Laboratory. He wrote a bill amendment requiring the DOE first to report on its need and supply of nuclear materials labs. The DOE never submitted its report, and a House-Senate conference committee killed funds for the Los Alamos project.

"There's a lot of uncertainty because we don't know what the Energy Department's overall approach to plutonium processing is," Bingaman said at the time.

By then, the Energy Department and Los Alamos had 100 people working on the project and already had spent $32 million. Ludecke said Bingaman isn't necessarily committed to building the new lab but wants to "begin the conversation."

"It doesn't lock us into building a new structure," she said. "It shouldn't be taboo to talk about a new building. If the current structure is continuing to deteriorate and cost a great deal to repair, we should be able to examine whether a new building makes sense."

Mello aff 3, par 85, ref 58

95-D-102, CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico

(Changes from FY 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

None.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	Title I & II A-E Work Initiated	Title I & II A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1995 Budget Request [a]	1Q 1992	1Q 1997	3Q 1993	4Q 2003	194,750	204,000
FY 1996 Budget Request	1Q 1992	1Q 1997	3Q 1993	4Q 2004	194,750	204,000
FY 1997 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 1998 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 1999 Budget Request	1Q 1992	1Q 1999	3Q 1993	4Q 2002	174,100	223,635
FY 2000 Budget Request *(Current Baseline Estimate)*	1Q 1992	1Q 1999 [b]	3Q 1993	4Q 2004 [c]	174,100 [c d]	223,635

[a] Prior to FY 1995, CMR Upgrades Phase 1 was a subproject within Nuclear Weapons Research Development and Testing Facilities Revitalization, Phase III (90-D-102). In FY 1995, Phase 1 was segregated and the scope of Phases 2 and 3 were added to create this stand alone line item.

[b] Title I activities have been completed for all Phase 1 subprojects. Phase 2 subproject Title I activities were ongoing when the project was placed on hold, and Title I baselines have not been established.

[c] Project has been restarted to address safety and reliability requirements as an outcome of the facility; Basis for Interim Operations (BIO) Review and Associated Technical Safety Requirements (TSRs).

[d] Phase 2 CDR baseline estimate.

Mello aff 3, par 85, ref 59

required and planned maintenance. This year, however, several initiatives have been launched to offset negative effects on facility conditions.

The Laboratory has launched a new Conduct of Maintenance (COM) program this year, with clear definitions of roles, responsibilities, authorities, and accountabilities as a keystone for planned improvement. Responsible Associate Directors (RAD) have been identified for all Laboratory facilities. A Maintenance Manager is deployed to each FOD to execute annual maintenance plans in accordance with the Laboratory's COM and associated implementing procedures.

Figure 4-10 depicts the Laboratory Maintenance Management Program, derived from DOE requirements and best management practices. This figure portrays the flow down from DOE maintenance management requirements specified in DOE Orders 433.1 and 430.1B and flowed down through institutional policies and procedures. Detailed maintenance program attributes are described in the Maintenance Implementation Plan (MIP).

As described in the FY07 TYSP, the Laboratory benchmarked its required maintenance budgets with Department of Defense (DoD) facility models of sustainment costs. This benchmarking project resulted in the Risk Informed Sustainment Cost (RISC) model. In the RISC model DoD analytic predictions are modified based on Laboratory and facility specific ranking factors to estimate building specific maintenance budgets. The Laboratory has used this approach refine required maintenance numbers in the Attachment F cost model to input the required maintenance values in FIMS.

The CMR facility is classified with a unique calculation of required maintenance due to its size, low utilization, and the fact that it is in the last years of its effective life. Based on these factors, a target of 0.9% of RPV was calculated by the RISC model for CMR required maintenance. After 2014, the facility will be transitioned into a standby status requiring surveillance at an estimated cost of 0.3% of RPV.

In FY14, the CMRR facility is planned to become operational. The CMRR maintenance budget is projected at approximately 2.5% of RPV to sustain its condition. One of the challenges for the Laboratory and NNSA is to provide the funds necessary to meet this new maintenance funding demand. *

Replacement Plant Value = ≥ $2.2B
$55 M/yr maintenance

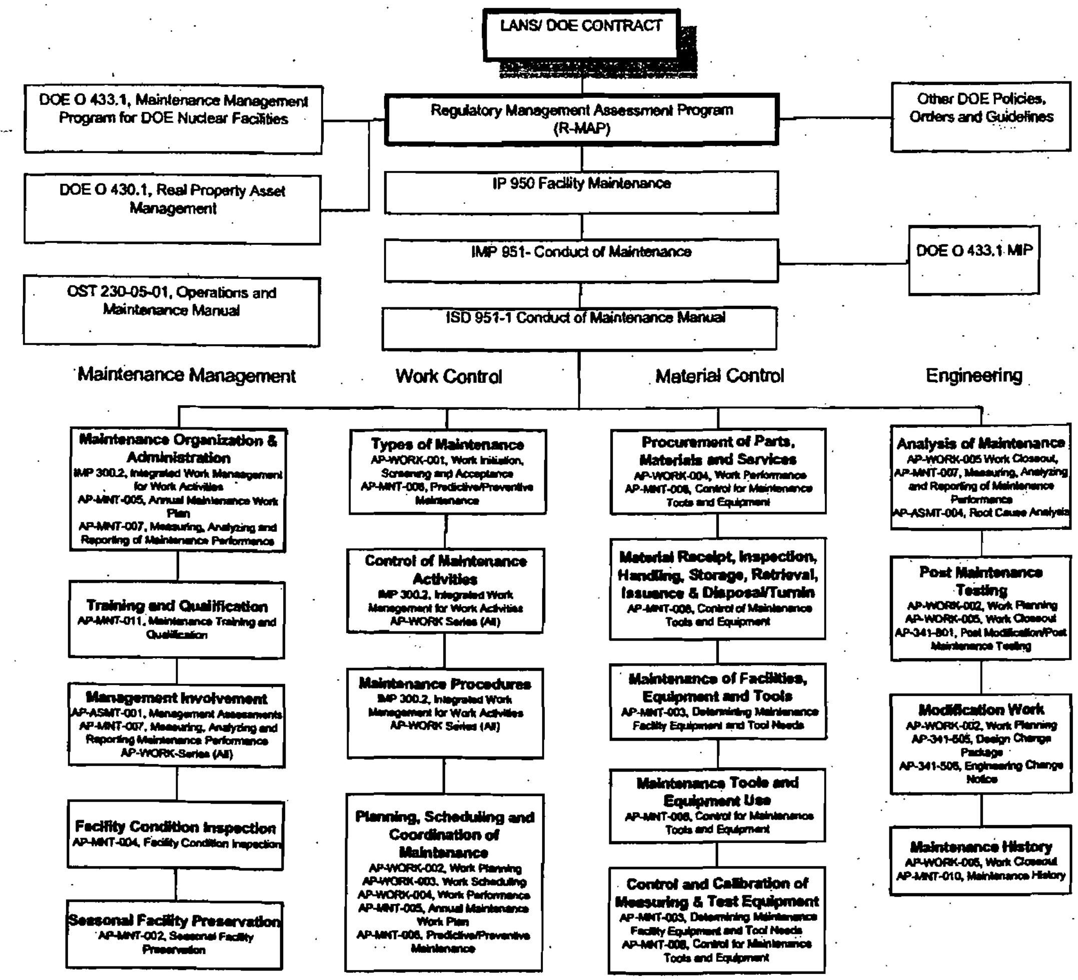

Figure 4-10: Laboratory Maintenance Management Program

Attachment F-2 does not currently reflect a reduction in required maintenance that is anticipated from the 2M FRI. The total reduction in required maintenance from the 2M FRI, as state above, is estimated to be approximately $6M annually. When the target facilities list for footprint reduction is finalized, estimates of annual required maintenance in Attachment F-2 will be reduced to reflect this information.

Planned Maintenance Funding

see previous

In FY07, the Laboratory's maintenance budget is $88M, approximately $7M less than the $95M costed during FY06. This budget has been adjusted with a burdening factor applied to local/indirect funds so as to present a common perspective on purchasing power when compared to the direct (RTBF) funds expended for facility maintenance. The direct maintenance budget has been reduced by 20% while the indirect maintenance budget has been increased by 6%.

The FY07 maintenance budget is not strictly speaking comparable to previous year budgets. In FY07, the national RTBF

88 LANL
+ 6 CMR
+ 55 CMRR
137

137 / 88 = 1.56
56% increase

citation: DOE, Defense Program Ten Year Comprehensive Site Plan (TYCSP), 9 Feb 2001

LANL Master Project List

Mello aff 3, par 85, ref 60

Priority Level	PROJECT TITLE	Program Sponsor	Funding Source	TPC $K	FY01 $K	FY02 $K	FY03 $K	FY04 $K	FY05 $K	FY06 $K	FY07 $K	FY08 $K	FY09 $K	FY10 $K	FY11 $K
DP-10 TRI-LAB Line Item Construction Plan															
H	Strategic Computing Facility (SCC)	DP-10	LIP	98,972	56,000	11,070									
H	SM-43 Replacement	DP-10	LIP	111,700			16,120	37,640	37,540	16,800					
M	Vulnerable Facility Replacement Program	DP-10	LIP	60,000				1,000		9,000	10,000	10,000	10,000	10,000	10,000
M	Rad Liquid Waste Upgrade	DP-10	LIP	20,000					4,000		16,000				
M	Power Grid Infrastructure Upgrade	DP-10	LIP	15,000						15,000					
M	Infrastructure Roof Upgrades	DP-10	LIP	21,000						3,000	3,000	3,000	3,000	3,000	6,000
M	DX Consolidation	DP-10	LIP	20,000						3,000		10,000	7,000		
M	LANSCE Support Complex	DP-10	LIP	18,000						3,000		7,000	8,000		
M	LANL Infrastructure Revitalization	DP-10	LIP	68,000							3,000		10,000	15,000	40,000
Sub-total - DP-10 TRI-LAB				**432,672**	**56,000**	**11,070**	**16,120**	**38,640**	**41,540**	**49,800**	**32,000**	**30,000**	**38,000**	**28,000**	**56,000**
DP-20 Line Item Projects															
H	CMR Upgrades	DP-20	LIP	128,568	13,280										
H	TA-18 Relocation	DP-20	LIP	100,000		10,000	20,000	30,000	30,000	10,000					
M	CMR Replacement	DP-20	LIP	375,000			25,000	50,000	80,000	100,000	95,000				
Sub-total - DP-20 Line Items				**603,568**	**13,280**	**10,000**	**45,000**	**80,000**	**110,000**	**110,000**	**95,000**				
Other Line Item Projects															
H	DARHT (Phase 2)	DP-10	LIP	155,343	34,460										
H	TA-53 Isotope Production Facility	DP-10	LIP	18,040	5,349	1,668									
H	NISC	NN	LIP	63,020	17,294	35,978	1,450								
H	NMSSUP, Phase I	DP-20	LIP	73,951	20,391	25,761	9,785	3,648	1,907						
H	Advanced Hydrotest Facility (formerly PRISM) [$1.6B to $1.9B Range]	DP-10	LIP	1,600,000		35,100	65,100	129,100	TBD	TBD	TBD	TBD	TBD	TBD	TBD
H	APT / Triple A Project	DP/NE	LIP	176,772	45,047	17,824									
H	Spallation Neutron Source Line Accelerator	Of. Of Sc.	LIP	204,516	41,865	54,440	57,401	15,466	1,722						
Sub-total Other Line Items				**2,291,642**	**164,406**	**170,771**	**133,736**	**148,214**	**3,629**						
CERRO GRANDE REHABILITATION PROJECTS															
H	DARHT (BCP)	DP	LIP	6,100	6,100										
H	Emergency Operations Center	DP	LIP	20,000	20,000										
H	Multi-Channel Communication System	DP	LIP	8,000	8,000										
H	Two Office Buildings (TA46 & TA16)	DP	LIP	10,000	10,000										
H	Site-wide Fire Alarm Replacement	DP	LIP	25,000	25,000										
H	TA-50/54 Waste Mgt. Risk Mitigation	DP	LIP	29,100	29,100										
Sub-total CGRP				**98,200**	**98,200**										
GPP & EXPENSE PROJECTS															
H	Fire Suppression Yard Main Replacement (TA-55)	DP-20	Expense	15,905	6,532	2,278									
H	Short Pulse Spallation Source (SPSS)	DP-10	Expense	25,400	5,112	5,149	556								
H	High Power Detonator Facility	DP-20	GPP	4,500	1,500	3,000									
H	TA-53-64 Cooling Tower	DP-10	GPP	4,400	3,350	600									
H	TA-53-62 Cooling Tower Replacement	DP-10	GPP	4,881	1,170	300									
H	TA-15 Electrical Distribution Upgrade	DP-10	GPP	2,500	2,000	500									
H	Water Treatment (TA-3)	DP-10	GPP	3,500	3,500										
M	Electrical Infrastructure Safety Upgrade Program	DP-10	GPP	40,690	1,500	7,800	8,000	8,300	8,600	4,500					
M	Decontamination & Volume Reduction System	EM	GPP	4,740											
M	TA-50 Salt Removal Evaporator	DP	GPP	10,000		2,000	2,000	2,000	2,000	2,000					
M	TA-3-40 N161 G&D (refurbish old MEC plating shop)	DP-10	GPP	1,000			750								
M	Ventilation Upgrade, Lujan Center	DP-10	GPP	2,750			2,150								
M	West Road Connector to Mercury	DP-10	GPP	3,500			3,500								
M	Convert Heating System and Upgrade Controls at TA-48-RC1	DP-10	GPP	750			750								
M	HVAC/Electrical Upgrade, MPF-6	DP-10	GPP	600			600								
M	Otowi Floor Replacement/Upgrades	DP-10	GPP	5,080			2,500	2,500							
M	TA-3 Auditorium Bldg	DP-10	GPP	4,750				4,750							
M	Target Fabrication (Series of small upgrades)	DP-10	GPP	800				800							
M	East Loop Road Phase 1 (Gateway Connection)	DP-10	GPP	5,000				5,000							
M	Firing Sites Revitalization's Program (Series of GPP's Buildings)	DP-10	GPP	25,000				5,000	5,000	5,000	5,000	5,000			
M	TA-55 Site/Parking & Infrastructure Upgrade (2 projects)	DP-20	GPP	10,000					5,000	5,000					
L	Unused Roads Reclamation Projects	DP-10	GPP	1,000							500	500			
L	Other Safety Related Urgent Maintenance &GPPs	DP-10						10,000	10,000	10,000	15,000	15,000	15,000	20,000	20,000

Mello aff 3, par 86, ref 62

04-D-125, Chemistry and Metallurgy Research Facility Replacement, Los Alamos National Laboratory Los Alamos, New Mexico

The Total Estimated Cost for design of the Chemistry and Metallurgy Research Facility Replacement (CMRR) project has been decreased by $40,500,000 from the original Project Engineering and Design (PED) estimate (03-D-103) due to a revised acquisition strategy, whereby a design-build approach will be utilized. Under this approach, the design funding decrement has been moved out of PED and is requested within the construction part of this line item project.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 2004 Budget Request *(Preliminary Estimate)*.	1Q 2004	3Q 2006	2Q 2004 [a]	1Q 2011	500,000 [b]	600,000

An estimate of two-thirds of this amount ($400 million) is associated with CMRR-NF, and $200 million with RLUOB, in the table in paragraph 86. This 2:1 cost ratio between the two buildings is used in the table from FY2003 to FY 2007.

[a] Physical Construction Start: 2Q 2004 for light lab/office buildings and 3Q 2006 for Hazard Category II and III/IV buildings.

[b] The TEC includes the cost of design activities ($14,500,000) appropriated in 03-D-103, Project Engineering and Design (PED) to support design-build acqusition. This is a preliminary baseline estimate. The performance baseline will be established following completion of preliminary design and Critical Decision 2.

Project Engineering and Design funding provided in FY 2003 ($10,000,000) and FY 2004 ($4,500,000) will be used for preliminary design activities for both the Light Laboratory/Office Building and Nuclear Laboratory(s) elements of the project. FY 2004 construction funding requested in this line item will be used for initiation of design and construction for the light laboratory/office building component of CMRR and initiation of design activities for nuclear laboratory(s).

Scope

The scope for this project was developed through joint LANL/NNSA Integrated Nuclear Planning (INP) activities and workshops. The major CMRR scope elements resulting from INP activities are:

- Relocate existing CMR analytical chemistry and material characterization (AC/MC) capabilities at LANL.
- Special nuclear material storage for CMR AC/MC working inventory and overflow capacity for PF-4.

In addition to these two major elements, the following elements will be evaluated during conceptual design through the completion of option studies:

- Contingency space to accommodate future mission requirements.
- Large vessel containment and processing capabilities.
- Non-LANL user space requirements.
- Consolidation of LANL PF-4 AC/MC capabilities.

Net space requirements for the above listed scope elements within CMRR were developed through a LANL/NNSA INP workshop conducted in July 2001. The following space requirements were identified:

- 60,000 gross square feet of Hazard Category II space for AC/MC, large vessel containment and processing, material storage, and contingency space.
- 60,000 gross square feet of Hazard Category III/IV space for AC/MC and contingency space.
- 90,000 gross square feet for a light laboratory/office building.

Project Milestones

Light Lab/Office Building (design-build)

FY 2004	Initiate Design	1Q
FY 2004	Initiate Construction	2Q

Nuclear Laboratory(s)

FY 2004	Complete Conceptual Design	4Q
FY 2005	Complete Title I – Preliminary Design	1Q
FY 2006	Complete Title II – Final Design	3Q
FY 2011	Complete Title III – Construction	1Q
FY 2012	Complete Transition/Closeout	1Q

Mello aff 3, par 86, ref 63

1. Construction Schedule History [a]

	Fiscal Quarter				Total Estimated Cost [b] ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 2004 Budget Request (*Preliminary Estimate*)……………….	1Q 2004	3Q 2006	2Q 2004	1Q 2011	500,000	600,000
FY 2005 Budget Request *(Preliminary Estimate)*………………...	3Q 2004	3Q 2007	3Q 2005	3Q 2012	500,000	600,000

[a] The TEC and TPC for this project are being developed as the planning phase continues. Early indications are that the TEC and TPC are at the higher end of the pre-conceptual baseline range, which is higher than the estimate in Section 1. Updated estimates will be provided in the FY 2006 request. In addition, physical construction start/complete dates will be impacted by FY 2004 and FY 2005 funding reductions. The NNSA is evaluating the impacts of the funding reductions and will provide a new profile and schedule in the FY 2006 request.

[b] The TEC includes the cost of preliminary design ($24,500,000) appropriated in 03-D-103, Project Engineering and Design (PED).

operational restrictions preclude the full implementation of the level of operations DOE/NNSA requires as documented through the Record of Decision for the 1999 LANL Site-Wide Environmental Impact Statement, and the 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement. The CMRR project will relocate mission-critical CMR capabilities at LANL to sustain national security missions at LANL while reducing risks to the public and workers.

Project Scope

As currently envisioned, the CMRR project consists of three primary elements. These elements define the basic scope and drive the acquisition strategy.

- Radiological Laboratory/Utility/Office Building (RLUOB): Construction of a facility(s) to house light laboratory of approximately 20,000 net square feet capable of handling radiological (<8.4g Pu^{239} equivalent) quantities of Special Nuclear Materials (SNM), a utility building sized to provide utility services (including heating and chilled water, potable hot/cold water, compressed air, and process gasses) for all CMRR facility elements, and office space for CMRR workers located outside of perimeter security protection systems. The RLUOB is the initial element of the CMRR and will be completed under a Design-Build (D-B) approach.

- CMRR Nuclear Laboratory(s): Construction of a facility(s) of approximately 45,000[a] net square feet to house Hazard Category II (approximately 22,000 net sq. ft.) and Hazard Category III (approximately 23,000 net sq. ft) nuclear laboratory space for Actinide Chemistry/Material Characterization (AC/MC) operations, SNM Storage, large vessel handling capability and associated mission contingency space located behind perimeter security protective systems. The nuclear laboratories will follow the RLUOB and will be completed through a modified D-B acquisition procurement.

- Special Facilities Equipment (SFE) - Gloveboxes: Includes design/procurement for Special Facilities Equipment (gloveboxes and long-lead AC/MC equipment) for CMRR nuclear laboratory(s). The SFE – Gloveboxes element will be conducted in parallel with the nuclear laboratories.

Project Milestones

FY 2004:	Critical Decision 2/3, Performance Baseline for RLUOB (Design-Build)	4Q
FY 2005:	Physical Construction Start, RLUOB	3Q
	Critical Decision 2/3, Performance Baseline for Nuclear Facility(s)	3Q

[a] All space estimates cited were identified through joint NNSA/LANL Integrated Nuclear Planning Activities and are preliminary pending further project development.

Mello aff 3, par 86, ref 64

1. Construction Schedule History [a]

	Fiscal Quarter				Total Estimated Cost [b] ($000)	Total Project Cost [c] ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 2004 Budget Request (*Preliminary Estimate*).............	1Q 2004	3Q 2006	2Q 2004	1Q 2011	500,000	600,000
FY 2005 Budget Request *(Preliminary Estimate)*.............	3Q 2004	3Q 2007	3Q 2005	3Q 2012	500,000	600,000
FY 2006 Budget Request *(Preliminary Estimate)*	2Q 2005	4Q 2009	1Q 2006	4Q 2010	738,192	838,192

[a] The TEC and TPC for this project reflect results of Conceptual Design phase activities. Updated estimates provided in this FY 2006 request reflect funding currently supported in FYNSP/ICPP. The NNSA evaluated the impacts of prior year funding reductions and projected resource availability and has adjusted this CD-1 profile and schedule accordingly. The start of physical construction relates to the Radiological Laboratory/Utility/Office Building; completion of A-E services and physical construction relate to the Nuclear Facility.

[b] The TEC includes the cost of preliminary design appropriated in 03-D-103, Project Engineering and Design (PED).

[c] CMRR CD-1 TPC estimate range is currently $745 - $975 million and the TPC may be revised as performance baselines are established at respective CD-2/3's.

7. Related Annual Funding Requirements

No estimates available*

	(dollars in thousands)	
	Current Estimate	Previous Estimate
Related annual costs (estimated life of project (50 years)		
Annual facility operating costs	N/A*	N/A*
Annual facility maintenance/repair costs	N/A*	N/A*
Programmatic operating expenses directly related to this facility	N/A*	N/A*
Programmatic capital equipment not related to construction	N/A*	N/A*
Utility costs	N/A*	N/A*
Total related annual funding	N/A*	N/A*

As directed by the DOE Acquisition Executive at CD-0, the NNSA and LANL completed an initial study of requirements for Deactivation and Decommissioning (D&D) of the existing CMR Building located at TA-3, LANL during development of the CMRR conceptual design. The initial pre-conceptual cost estimate range for D&D of the CMR Building is $200 - $350 million (un-escalated FY 2004 dollars) with an associated schedule estimate range of 4-5 years. (If this cost range is escalated to FY 2012, the cost estimate range becomes $350 -$500 million). NNSA is committed to D&D of the CMR Building upon completion of CMRR construction and transition of nuclear operations. As such, NNSA will evaluate the CMR D&D requirements in the outyear program planning cycle as a follow-on project separate from CMRR.

Mello aff 3, par 86, ref 65

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years[a]	FY 2007[b]	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC (Design)[c]...............	72,071	54,325	73,921	0	0	0	0	200,317
TEC (Construction).......	84,621	62,422	86,665	178,011	126,156	0	0	537,875
OPC Other than D&D...	34,218	5,000	7,000	3,000	5,000	21,000	24,782	100,000
Offsetting D&D Costs ..	0	0	0	0	0	0	TBD	TBD
Total, Project Costs.......	190,910	121,747	167,586	181,011	131,156	21,000	24,782	838,192

8. Related Operational and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy Phase A (fiscal quarter)..........	3Q FY 2008
Start of Operation or Beneficial Occupancy Phase C (fiscal quarter)..........	2Q FY 2014
Expected Useful Life (number of years)...	50
Expected Future start of D&D for new construction (fiscal quarter)...........	2Q FY 2065

(Related Funding Requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	N/A	N/A	N/A	N/A

9. Required D&D Information

As directed by the DOE Acquisition Executive at CMRR CD-0, NNSA and LANL developed a pre-conceptual cost and schedule range for the D&D requirements of the existing CMR Building located at TA-3 during the CMRR conceptual design. The initial pre-conceptual cost estimate range for D&D of the CMR Building is $200M-$350M (un-escalated FY 2004 dollars) with an associated schedule estimate range of 4-5 years. (If this cost range is escalated to FY 2012, the cost estimate range increases to $350M-$500M). This information was presented as part of CMRR CD-1 per Secretarial direction issued at CD-0.

During the 3rd Quarter of FY 2005 the D&D of the existing CMR facility received CD-0 in conjunction with CMRR CD-1 approval. The receipt of CD-0 for the D&D of the CMR Facility demonstrates NNSA commitment to the FY 2002 Energy and Water and Water Development appropriations Bill Conference Report (107-258) "one-for-one" requirement. The current FYNSP/ICPP funding profiles included in this CPDS do not include the funding for the D&D of the CMR Facility as final funding determinations have yet to be made for inclusion in the appropriate

[a] Previous project data sheets included $5,242K of Pre-Conceptual Design costs (Pre CD-0) that have been removed based on FY 2007 project data sheet guidance.

[b] Funding for FY 2007, FY 2009, and FY 2010 have been adjusted to reflect NNSA FY 2007 Program Decision Memorandum.

[c] TEC (Design) includes $66.4M in preliminary design for CMRR Phases B and C appropriated through 03-D-103.

Mello aff 3, par 86, ref 66

3. Baseline and Validation Status[a]

(dollars in thousands)

	TEC[b]	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2004	500,000	100,000	N/A	600,000	0	600,000
FY 2005	500,000	100,000	N/A	600,000	0	600,000
FY 2006	750,000	100,000	N/A	850,000	0	850,000
FY 2007	738,097	100,000	TBD	838,097	164,000	838,097
FY 2008	TBD	TBD	TBD	TBD	164,000	837,299

4. Project Description, Justification, and Scope

Project Description

The CMRR Project seeks to relocate and consolidate mission critical analytical chemistry, material characterization (AC/MC), and actinide research and development (R&D) capabilities, as well as providing SNM storage and large vessel handling capabilities to ensure continuous national security mission support capabilities beyond 2010 at Los Alamos National Laboratory (LANL).

Justification

In January 1999, the NNSA approved a strategy for managing risks at the CMR Building. This strategy recognized that the 50-year-old CMR Facility could not continue its mission support at an acceptable level of risk to public and worker health and safety without operational restrictions. In addition, the strategy committed NNSA and LANL to manage the existing CMR Building to a planned end of life in or around 2010, and to develop long-term facility and site plans to replace and relocate CMR capabilities elsewhere at LANL, as necessary to maintain support of national security missions. CMR capabilities are currently substantially restricted, and unplanned facility outages have resulted in the operational loss of two of seven wings at the CMR Building. These operational restrictions preclude the full implementation of the level of operations DOE/NNSA requires as documented through the Record of Decision for the 1999 LANL Site-Wide Environmental Impact Statement, and the 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement. The CMRR project will relocate mission-critical CMR capabilities at LANL to Technical Area (TA)-55 near the existing Plutonium Facility (Building PF-4). The CMRR Project will also provide for SNM storage capabilities in order to sustain national security missions at LANL, and reduce risks to the public and workers as described in the November 2003 Final Environmental Impact Statement for CMRR and approved in the February 2004 CMRR EIS Record of Decision.

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[a] The TEC and OPC (exclusive of CMR D&D costs) reflect alternative selection and cost range information approved at CD-1, 3Q FY 2005. Updated estimates provided in this FY 2008 request reflect funding current estimates for all CMRR Phases. The validated performance baseline for CMRR Phase A was attained in 1Q FY 2006. The overall preliminary estimate ($837,299,000) includes the CMRR Phase A validated value and the unvalidated estimates for Phases B and C, which are expected to be baselined in FY 2007. No construction funds will be used until the Performance Baselines have been validated for each respective phase of CMRR.

[b] The TEC includes the cost of preliminary design ($65,139,000) appropriated in 03-D-103, Project Engineering and Design (PED) for Phases B and C.

Mello aff 3, par 86, ref 67

04-D-125, Chemistry and Metallurgy Research Building Replacement (CMRR) Project, Los Alamos National Laboratory (LANL), Los Alamos, New Mexico Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decisions (CD) are CD-1 for the Nuclear Facility (NF), Special Facility Equipment (SFE), and Radiological Laboratory/Utility/Office Building (RLUOB) phases of the project, and CD-2/3A for the RLUOB phase of the project. The CMRR CD-1 was approved on June 17, 2005 with a preliminary cost range of $745,000,000 - $975,000,000, although costs could be greater. Subsequently, the CD-2/3A for the RLUOB was approved on December 5, 2005, with a Total Project Cost (TPC) of $164,000,000. The NF and SFE are continuing with final design, while the Radiological Laboratory/Utility/Office Building is being executed with a design build contract. The TPC of the RLUOB is part of the overall CMRR Project preliminary cost range.

Based on continued examination of the project and recent, industry-wide experience related to the increases in the cost of construction of comparable facilities, the estimate for construction of the Nuclear Facility at CMRR is now viewed to be significantly higher. Initial estimates place the revised TPC above $2,000,000,000. A final cost estimate will be established when the Nuclear Facilities performance baseline is established at CD-2, which is estimated to occur during FY 2010. Funding profile reflected in Section 5 for the inclusive period of FY 2010 to FY 2013 is a funding placeholder for the construction which will be needed for the plutonium facility. This decision will result from the NEPA and PEIS process the NNSA is presently conducting.

A Federal Project Director with certification level IV has been assigned to this project.

This PDS is an update of the FY 2008 PDS.

The figure of $277 million for RLUOB is used in the table in paragraph 86 for 2008 and 2009 in the absence of other data.

04-D-125, Chemistry and Metallurgy Research Building Replacement (CMRR) Project, Los Alamos National Laboratory (LANL), Los Alamos, New Mexico
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-1 for the Nuclear Facility (NF), Special Facility Equipment (SFE), and Radiological Laboratory/Utility/Office Building (RLUOB) equipment installation components of the project, and CD-2/3A for the RLUOB facility component of the project. The CMRR CD-1 was approved on May 18, 2005, which at the time had a preliminary cost range of $745,000,000 - $975,000,000. It is recognized that many of the prior planning assumptions have changed. Further discussion below addresses these changes impacting the estimate. The CD-2/3A for the RLUOB construction was approved on October 21, 2005, with a Total Project Cost (TPC) of $164,000,000. The construction of the RLUOB is being executed with a design build contract. Subsequent Critical Decisions will be sought for the establishment of the performance baselines to install SFE equipment in the RLUOB and for the NF and associated SFE equipment. The TPC of the RLUOB construction is part of the overall CMRR Project preliminary cost range.

Based upon DOE/NNSA Program direction to the project in FY 2007 and FY 2008, the project scope description in Section 4 was modified to address incorporation of the Special Facility Equipment (formerly addressed as Phase B), into each of the respective facility components of CMRR, namely the RLUOB and NF. The start of final design was approved for the SFE associated with the RLUOB in May 2007. With the completion of the RLUOB/SFE final design in FY 2008 and the anticipated establishment of the performance baseline in FY 2009, this effort is being addressed as the Equipment Installation effort necessary for the RLUOB to become programmatically operational. For the Nuclear Facility, the facility construction, equipment procurement and installation, and facility operational readiness will be addressed within the NF performance baseline.

A revised estimate to complete assessment will be performed by the project prior to authorization for NF final design. The estimate for construction of the NF is now viewed to be significantly higher (TPC above $2,000,000,000) than studied earlier during conceptual design. The funding profile reflected in Section 5 for the inclusive period of FY 2011 to FY 2014 is a funding placeholder for the NF final design only. No funding placeholder for construction of the Nuclear Facility is included in this data sheet. The decision about how far to proceed into final design 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.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

Mello aff 3, par 86, ref 69

7. Schedule of Total Project Costs

(dollars in thousands)

		Prior Years	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Outyears	Total
FY 2005	TEC	159,130								159,130
RLOUB	OPC	4,068	802							4,870
Baseline	TPC	163,198	802	0	0	0	0	0	0	164,000
FY 2009	TEC	38,100	40,000	59,000	15,800					152,900
REI	OPC	5,602	11,900	12,100	12,400	4,498				46,500
Baseline	TPC	43,702	51,900	71,100	28,200	4,498	0	0	0	199,400
	TEC	159,130								159,130
FY 2010	OPC	4,068	802							4,870
RLOUB	TPC	163,198	802	0	0	0	0	0	0	164,000
	TEC	38,100	40,000	59,000	15,800					152,900
FY 2010	OPC	5,602	11,900	12,100	12,400	4,498				46,500
REI	TPC	43,702	51,900	71,100	28,200	4,498	0	0	0	199,400
	TEC	131,600	57,500	129,000	289,200	300,000	300,000	300,000	1,504,631	3,011,931
FY 2010	OPC	34,481	2,000	2,500	3,000	3,500	4,000	4,550	300,500	354,531
NF	TPC	166,081	59,500	131,500	292,200	303,500	304,000	304,550	1,805,131	3,366,462
	TEC	159,130								159,130
FY 2011	OPC	4,068	802							4,870
RLOUB	TPC	163,198	802	0	0	0	0	0	0	164,000
	TEC	38,100	40,000	59,000	15,800					152,900
FY 2011	OPC	5,602	11,900	12,100	12,400	4,498				46,500
REI	TPC	43,702	51,900	71,100	28,200	4,498	0	0	0	199,400
	TEC	131,600	57,500	166,000	289,200	300,000	300,000	300,000	1,532,769	3,077,069
FY 2011	OPC	34,481	2,000	2,500	3,000	3,500	4,000	4,550	300,500	354,531
NF	TPC	166,081	59,500	168,500	292,200	303,500	304,000	304,550	1,833,269	3,431,600

Note: NF data above are pre-baseline planning figures

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4QFY2009[a]
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	2QFY2065

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total, Operations & Maintenance	N/A	N/A	N/A	N/A

[a] This date corresponds to the beneficial occupancy of the RLUOB construction phase only. NF date is TBD.

DOE/EIS-236-S2

U.S. Department of Energy

Draft Supplemental Programmatic Environmental Impact Statement on Stockpile Stewardship and Management for a Modern Pit Facility

Summary

May 2003

U.S. Department of Energy
National Nuclear Security Administration

Pit capacity requirements must also account for the need for additional pits, e.g., logistics spares and surveillance units. As a result of this requirement, the number of pits that must be available to support a specific weapon system will exceed the number of deployed strategic weapons and vary by pit type.

Contingency production requirements are also an important driver for the need for a MPF. Contingency production, which is the ability to produce a substantial quantity of pits on short notice, is distinct from the capacity needed to replace pits destroyed for surveillance or other reasons (such as for production quality assurance or other experiments). The capacity of a MPF needs to support both scheduled stockpile pit replacement at EOL and any "unexpected" short-term production. Such short-term "contingency" production may be required for reliability replacement (replacement of pits to address, for example, a design, production, or unexpected aging flaw identified in surveillance), or for stockpile augmentation (such as the production of new weapons, if required by national security needs).

In all cases, and in all combinations with other capacity drivers, the interim production capacity being established at LANL will be inadequate to maintain these projected stockpiles. The required production capacity is a function of pit lifetime, stockpile size, and start date of full-scale production. To account for these variables, this MPF EIS evaluates a pit production capacity between 125-450 ppy for full-scale production beginning in approximately 2020.

S.2.1.4 Agility as a Driver

A critical element of production readiness is the agility (the ability to change rapidly from the production of one pit type to another, or to simultaneously produce different pit types) of the production line. Pits in the current enduring stockpile were produced over a relatively short period of time and can therefore be expected to reach their respective EOLs at about the same time, as well. Thus, any strategy to replace the enduring stockpile pits before they reach their EOL must address both the production rate for a particular pit type (the capacity driver discussed in Section S.2.1.1), and the ability to produce all necessary pit types in a relatively short period of time. For this reason, agility is an essential requirement for a MPF.

Contingency production also requires agility. If contingency production is ever needed, the response time will likely be driven by either a reliability problem that requires prompt response, or another type of emergency that must be addressed quickly. Thus, changeover from production of one pit type to another will have to be demonstrated for both replacements of pits at EOL (a process that will allow for planning and scheduled activities in advance of the need date), as well as for startup of contingency production with little notice (and therefore little planning time).

S.2.2 Purposes to be Achieved by a Modern Pit Facility

If constructed and operated, a MPF would address a critical national security issue by providing sufficient capability to maintain, long-term, the nuclear deterrent that is a cornerstone of U.S. national security policy. A MPF would provide the necessary pit production capacity and agility that cannot be met by pit production capabilities at LANL.

GAO

United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-276266

March 4, 1997

The Honorable John R. Kasich
Chairman, Committee on the Budget
House of Representatives

Subject: Department of Energy: Major System Acquisitions From 1980 Through 1996

Dear Mr. Chairman:

As requested, we are providing you with a listing of the major system acquisitions (MSA) that were conducted by the Department of Energy (DOE) between 1980 and 1996. Major systems are those projects that are critical to fulfilling an agency mission, entail the allocation of relatively large amounts of resources, and warrant special management attention. The enclosed table lists whether they were completed, terminated, or ongoing as of June 1996 and provides costs and schedule data associated with each. These data were compiled as part of our report entitled Department of Energy: Opportunity to Improve Management of Major System Acquisitions (GAO/RCED-97-17, Nov. 26 1996).

As discussed in our report, DOE has spent tens of billions of dollars on projects over the past decade and a half, many of which experienced significant cost overruns[1] and delays, and some have never been completed. These activities have involved large-scale first-of-a-kind projects requiring substantial construction and other expenses. These activities have included developing and producing nuclear weapons; operating nuclear reactors, uranium enrichment plants, and plutonium production plants; performing research and development on both military and civilian uses of nuclear energy; promoting and funding nuclear and other sciences; fostering energy conservation and efficiency; managing federal petroleum reserves; and, more recently, cleaning up environmental contamination resulting from the Department's past operations.

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[1]Cost overruns are increases from a project's original cost estimate.

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As shown in the table, from 1980 through 1996, DOE conducted 80 projects that it designated as MSAs, and it has completed 15 of these projects. Most of them were finished behind schedule and with cost overruns. Thirty-one other projects were terminated prior to completion, after expenditures of over $10 billion. The remaining 34 projects are ongoing. Cost overruns and "schedule slippage" have occurred and continue to occur on many of the ongoing projects.

We performed this work during the first 2 weeks of February 1997 in accordance with generally accepted government auditing standards. Please contact me on (202) 512-3841 if you or your staff have any questions. Major contributors to this report include William M. Seay and William F. Fenzel.

Sincerely yours,

Victor S. Rezendes
Director, Energy, Resources,
and Science Issues

Enclosure

November 2010 Update to the National Defense Authorization Act of FY2010 Section 1251 Report New START Treaty Framework and Nuclear Force Structure Plans

1. Introduction

This paper updates elements of the report that was submitted to Congress on May 13, 2010, pursuant to section 1251 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84) ("1251 Report").

2. National Nuclear Security Administration and modernization of the complex – an overview

From FY 2005 to FY 2010, a downward trend in the budget for Weapons Activities at the National Nuclear Security Administration (NNSA) resulted in a loss of purchasing power of approximately 20 percent. As part of the 2010 Nuclear Posture Review, the Administration made a commitment to modernize America's nuclear arsenal and the complex that sustains it, and to continue to recruit and retain the best men and women to maintain our deterrent for as long as nuclear weapons exist. To begin this effort, the President requested a nearly 10 percent increase for Weapons Activities in the FY 2011 budget, and $4.4 billion in additional funds for these activities for the FY 2011 Future Years Nuclear Security Plan (FYNSP).[1] These increases were reflected in the 1251 report provided to Congress in May 2010.

The Administration spelled out its vision of modernization through the course of 2010. In February, soon after the release of the President's budget, the Vice President gave a major address at the National Defense University in which he highlighted the need to invest in our nuclear work force and facilities. Several reports to Congress provided the details of this plan, including: NNSA's detailed FY 2011 budget request, submitted in February; the strategy details in the *Nuclear Posture Review* (NPR) (April); the 1251 report (May); and the multi-volume *Stockpile Stewardship and Management Plan (SSMP)* (June). Over the last several months, senior Administration officials have testified before multiple congressional committees on the modernization effort.

The projections in the Future Years Nuclear Security Plan (FYNSP) that accompanied the FY 2011 budget submission and the 1251 report by the President are, appropriately called, 'projections.' They are not a 'fixed in stone' judgment of how much a given project or program may cost. They are a snapshot in time of what we expect inflation and other factors to add up to, given a specific set of requirements (that are themselves not fixed) over a period of several years. Budget projections, whether in the FYNSP and other reports, are evaluated each year and adjusted as necessary.

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[1] After adjustment for the transfer of the Pit Disassembly and Conversion Facility from the Weapons Activities account to the Defense Nuclear Nonproliferation Account the increase over the FYNSP is actually $5.4 billion.

Secretary of Energy is convening his own review, with support from an independent group of senior experts, to evaluate facility requirements.

The overriding focus of this work is to ensure that UPF and CMRR are built to achieve needed capabilities without incurring cost overruns or scheduling delays. We expect that construction project cost baselines for each project will be established in FY 2013 after 90% of the design work is completed. At the present time, the range for the Total Project Cost (TPC) for CMRR is $3.7 billion to $5.8 billion and the TPC range for UPF is $4.2 billion to $6.5 billion. TPC estimates include Project Engineering and Design, Construction, and Other Project Costs from inception through completion. Over the FYNSP period (FY 2012-2016) the Administration will increase funding by $340 million compared with the amount projected in the FY 2011 FYNSP for the two facilities.

At this early stage in the process of estimating costs, it would not be prudent to assume we know all of the annual funding requirements over the lives of the projects. Funding requirements will be reconsidered on an ongoing basis as the designs mature and as more information is known about costs. While innovative funding mechanisms, such as forward funding, may be useful in the future for providing funding stability to these projects, at this early design stage, well before we have a more complete understanding of costs, NNSA has determined that it would not yet be appropriate and possibly counterproductive to pursue such a mechanisms until we reach the 90% design point. As planning for these projects proceeds, NNSA and OMB will continue to review all appropriate options to achieve savings and efficiencies in the construction of these facilities.

The combined difference between the low and high estimates for the UPF and CMRR facilities ($4.4 billion) results in a range of costs beyond FY 2016 as shown in Figure 3. Note that for the high estimate, the facilities would reach completion in FY 2023 for CMRR and FY 2024 for UPF. For each facility, functionality would be attainable by FY 2020 even though completion of the total projects would take longer.

Mello aff 3, par 90, ref 74

Project Engineering and Design funding provided in FY 2003 ($10,000,000) and FY 2004 ($4,500,000) will be used for preliminary design activities for both the Light Laboratory/Office Building and Nuclear Laboratory(s) elements of the project. FY 2004 construction funding requested in this line item will be used for initiation of design and construction for the light laboratory/office building component of CMRR and initiation of design activities for nuclear laboratory(s).

Scope

The scope for this project was developed through joint LANL/NNSA Integrated Nuclear Planning (INP) activities and workshops. The major CMRR scope elements resulting from INP activities are:

- Relocate existing CMR analytical chemistry and material characterization (AC/MC) capabilities at LANL.
- Special nuclear material storage for CMR AC/MC working inventory and overflow capacity for PF-4.

In addition to these two major elements, the following elements will be evaluated during conceptual design through the completion of option studies:

- Contingency space to accommodate future mission requirements.
- Large vessel containment and processing capabilities.
- Non-LANL user space requirements.
- Consolidation of LANL PF-4 AC/MC capabilities.

Net space requirements for the above listed scope elements within CMRR were developed through a LANL/NNSA INP workshop conducted in July 2001. The following space requirements were identified:

- 60,000 gross square feet of Hazard Category II space for AC/MC, large vessel containment and processing, material storage, and contingency space.
- 60,000 gross square feet of Hazard Category III/IV space for AC/MC and contingency space.
- 90,000 gross square feet for a light laboratory/office building.

Project Milestones

Light Lab/Office Building (design-build)

FY 2004	Initiate Design	1Q
FY 2004	Initiate Construction	2Q

Nuclear Laboratory(s)

FY 2004	Complete Conceptual Design	4Q
FY 2005	Complete Title I – Preliminary Design	1Q
FY 2006	Complete Title II – Final Design	3Q
FY 2011	Complete Title III – Construction	1Q
FY 2012	Complete Transition/Closeout	1Q

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(8-89)

Mello aff 3, par 93, ref 77

United States Government **Department of Energy**

memorandum

DATE: June 17, 2003

REPLY TO
ATTN OF: Office of NEPA Policy and Compliance (B. Mills, 202-586-8267)

SUBJECT: Guidance Regarding Actions That May Proceed During the National Environmental Policy Act (NEPA) Process: Interim Actions

TO: Secretarial Officers
Heads of Field Organizations

The Department of Energy (DOE) frequently needs to decide whether an action that is within the scope of an ongoing environmental impact statement (EIS) may proceed before a record of decision (ROD) is issued. An action within the scope of an EIS that is taken before a ROD is commonly referred to as an "interim action." DOE may propose to take the action before a ROD to reduce risk or mitigate adverse impacts to human health and the environment or reduce program costs. Indeed, interim actions to respond to an immediate need are often permissible and should be pursued, as appropriate. This issue arises most frequently with respect to actions that fall within the scope of a programmatic or site-wide EIS.

In preparing the attached guidance, we consulted with the Office of General Counsel, and we considered suggestions made by NEPA Compliance Officers. We prepared this guidance to help respond to the concern that compliance with NEPA could become the reason for near-term hazards to go unmitigated, as expressed in the February 2002 Environmental Management Top-To-Bottom Review. The guidance is based on criteria established by the Council on Environmental Quality in its regulations implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508), DOE's NEPA implementing regulations (10 CFR Part 1021), which rely on those criteria, and DOE Order 451.1B, *National Environmental Policy Act Compliance Program*. Examples of the types of actions that may proceed as interim actions and a flow diagram summarizing key aspects of the guidance are provided.

If you have any questions regarding this guidance or its application to particular proposed actions, please direct them to Carol Borgstrom, Director, Office of NEPA Policy and Compliance (EH-42), at 202-586-4600.

Beverly A Cook

Beverly A. Cook
Assistant Secretary
Environment, Safety and Health

Attachment
cc: William Dennison, GC-51
NEPA Compliance Officers

Guidance Regarding Actions That May Proceed
During the National Environmental Policy Act (NEPA) Process:
Interim Actions

The Department of Energy (DOE) frequently needs to decide whether an action that is within the scope of an ongoing environmental impact statement (EIS) may proceed before a record of decision (ROD) is issued. An action within the scope of an EIS that is taken before a ROD is commonly referred to as an "interim action." DOE may propose to take an action before a ROD to reduce risk or mitigate adverse impacts to human health and the environment or to reduce program costs. Indeed, interim actions to respond to an immediate need are often permissible and should be pursued, as appropriate. This issue arises most frequently with respect to actions that fall within the scope of a programmatic or site-wide EIS.

The following guidance is based on criteria established by the Council on Environmental Quality (CEQ) in its regulations implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508; 40 CFR 1506.1 attached as Exhibit 1), DOE's NEPA implementing regulations (10 CFR 1021.104 and 1021.211, attached as Exhibit 2, which define interim action and incorporate the CEQ criteria), and DOE Order 451.1B, *National Environmental Policy Act Compliance Program*. This guidance does not create any additional requirements beyond those in these sources.

To provide assistance in determining whether an action within the scope of an EIS may be taken before a ROD, the guidance reviews applicable requirements, gives examples of the types of actions that may proceed as interim actions, describes case studies, and outlines the steps in the EIS process for interim actions.

Requirements for project-specific and programmatic EISs are distinguished where appropriate. In brief, for a project-specific EIS, an interim action must be one that would not adversely affect the environment nor limit the choice of reasonable alternatives. For a programmatic EIS, an EIS must be prepared for a proposed interim action that has potential for significant environmental effects, and the interim action must be one that would neither affect nor be affected by the proposed program. In general, an action of relatively limited scope or scale that would have only local utility normally could be taken as an interim action before a ROD.

CEQ Criteria for Interim Actions

CEQ's criteria for interim actions (at 40 CFR 1506.1) are best understood in the context of the purpose of an EIS. As stated in the CEQ regulations, the primary purpose of an EIS is to serve as an action-forcing device to ensure that the policies and goals defined in NEPA are infused into an agency's ongoing programs and actions (40 CFR 1502.1). An EIS is more than a disclosure document; it is to be used by decision makers in conjunction with other relevant information to plan actions and make decisions.

At 40 CFR 1502.2, the CEQ regulations state that:

> "(f) Agencies shall not commit resources prejudicing selection of alternatives before making a final decision ([Section] 1506.1).
>
> (g) Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made" (emphasis added).

CEQ established separate criteria for project-specific EISs in Section 1506.1(a) and for required programmatic EISs in Section 1506.1(c), as discussed below.[1] Both sets of criteria address, in part, the need to avoid improper segmentation, in particular with regard to connected actions, e.g., actions that are interdependent parts of a larger action and depend on the larger action for justification (in 40 CFR 1508.25(a)).

Application of CEQ Criteria to DOE Actions Covered by Project-specific EISs

[1] In addition, Section 1506.1(b) states an agency's responsibility to ensure that non-Federal applicants meet the objectives of 40 CFR 1506.1(a), and Section 1506.1(d) allows limited activities (e.g., plans, designs) specifically in support of Federal, State or local permit applications.

CEQ also discusses the Section 1506.1 criteria in two items in Forty Most Asked Questions Concerning CEQ's NEPA Regulations (51 FR 15618; April 25, 1986). In item 10a, CEQ reiterates the criteria in 1506.1(a) and (c). In item 11a, CEQ provides examples of actions an agency could take under 40 CFR 1506.1(b) to ensure that the objectives and procedures of NEPA are met when an applicant proposes to take an invalid interim action within the agency's jurisdiction; the agency's actions could range from negotiation to non-approval of the permit application.

Under Section 1506.1(a), until an agency issues a ROD[2], no action concerning the proposal can be taken that would:

(1) Have an adverse environmental impact; or

(2) Limit the choice of reasonable alternatives.

Many types of actions could be interim actions to a project-specific EIS. In general, project managers may proceed with conceptual design (under DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets*) and feasibility studies in support of a project because these activities meet both criteria of Section 1506.1(a). Site characterization activities to support a meaningful analysis of the environmental impacts of the proposed project also generally may be undertaken. Small scale corrective actions under the Resource Conservation and Recovery Act or installing fences to enhance security represent other classes of actions that usually may proceed under the criteria of Section 1506.1(a).

Although the activities discussed in the paragraph above would take place while a more extensive action (e.g., a waste management or nuclear materials action) is being evaluated in its associated ElS, the activities normally are unlikely to involve adverse environmental impacts or limit the choice of reasonable alternatives for the final action. An action that is not within the scope of the EIS, such as ongoing site operations, would not be constrained by the criteria for an interim action and could proceed.

In the context of this guidance "adverse environmental impact" means a negative environmental impact at such a level that an element of the human environment is impaired or damaged. Judgment of whether the level of negative impact is high enough to impair or damage depends on the situation and the resource. For some resources, adverse impact is defined in the statute protecting the resource or in implementing regulations.

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[2]The CEQ regulations address criteria for interim actions during the preparation of an EIS only. A project or program for which an environmental assessment (EA) is prepared is normally smaller in scope than a project or program for which an EIS is prepared, and the EA process is shorter in duration than the EIS process. Thus the question of interim actions is less likely to arise during EA preparation. However, EAs, like EISs, are intended to inform decisions and therefore, normally should be completed before an action is taken. In those exceptional cases where part of a proposed action needs to proceed while the EA is being prepared, DOE managers should be mindful of the principles enunciated by the Section 1506.1(a) criteria, i.e., that the activity does not have an adverse environmental impact nor does it limit the choice of reasonable alternatives. Early and continued consideration of the Section 1506.1 criteria should lead to better project and program planning and decisions, regardless of whether an EA or an EIS is being prepared.

- For example, under the implementing regulations for the National Historic Preservation Act, "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." [36 CFR 800.5(a)(1)]

- Under the implementing regulations for the Endangered Species Act, an adverse impact would be a "take" (of an endangered or threatened species or a species proposed for listing as endangered or threatened), which means "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." [50 CFR 10.12] With regard to critical habitat, the implementing regulations define destruction or adverse modification to mean "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species." [50 CFR 402.02]

NEPA documentation is not normally needed for permissible interim actions under project-specific EISs. See Exhibit 3 for a diagram of steps in the NEPA process for interim actions for project-specific EISs. Valid interim actions associated with project-specific EISs should be minor in scope (as discussed above), not require analysis to show that the criteria are met, and be similar in nature to categorical exclusions. That a proposed interim action is similar in nature to a categorical exclusion does not in itself indicate that it is a valid interim action. As with the application of categorical exclusions or many other project or programmatic decisions, a record of interim action determination is recommended.

Proceeding with <u>detailed</u> design under DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets*, before the NEPA review process is completed (in contrast to conceptual design noted above) is normally not appropriate because the choice of alternatives might be limited by premature commitment of resources to the proposed project and by the resulting schedule advantage relative to reasonable alternatives. For example, detailed design for containers that could only be transported via rail may prejudice consideration of truck or barge transport as alternatives. Concern about limiting the choice of reasonable alternatives is the basis for the DOE policy, expressed in the DOE NEPA regulations at 10 CFR 1021.210(b), that NEPA review normally should be completed before deciding to start detailed design.[3]

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[3] Note, too, that DOE O 413.3 similarly provides for NEPA documentation to be completed before critical decision-2 (detailed design). Conceptual design and detailed design are defined under this DOE Order.

Application of CEQ Criteria to DOE Actions Covered by Programmatic EISs

Section 1506.1(c) states "While work on a required program environmental impact statement is in progress and the action is not covered by an existing program statement, agencies shall not undertake in the interim any major Federal action covered by the program which may significantly affect the quality of the human environment unless such action:

> (1) Is justified independently of the program;
>
> (2) Is itself accompanied by an adequate environmental impact statement[4]; and
>
> (3) Will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives."

In applying the <u>first criterion</u> ("independent justification"), DOE needs to determine that the proposed interim action could be undertaken irrespective of whether or how the program goes forward.

- In most cases in which DOE is obligated by law to carry out the proposed interim action (e.g., usually cases involving compliance with environmental requirements), DOE would be able to demonstrate independent justification by showing that no reasonably foreseeable decision based on the programmatic EIS would affect the proposed interim action.

- In cases that involve an existing facility that is within the scope of a programmatic EIS in preparation, DOE would need to establish, for example, that a proposed interim action involving a change in the facility (structure or operation) is needed to allow the facility to fulfill its existing mission before decisions can be made and implemented on the basis of the programmatic EIS. If so, a near-term modification would be permissible because it would be necessary for the ongoing program, regardless of how decisions based on the programmatic EIS may affect the future of the facility or the ongoing program.

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[4]Section1506.1(c) speaks in terms of interim actions that require an EIS ("major Federal actions"), and thus the criteria of that section do not specifically apply to interim actions to which a categorical exclusion has been applied or for which an environmental assessment and finding of no significant impact have been issued. However, proceeding with these kinds of interim actions when they do not meet the first and third criteria of section 1506.1(c) could present a risk that DOE could be found to be impermissibly segmenting the programmatic action. Therefore, it is recommended that DOE managers consider these criteria and determine that the interim action is independently justified and will not prejudice the ultimate decision on the program before proceeding with the action.

The second criterion indicates that an EIS must be prepared for a proposed interim action that has potential for significant environmental impact.

In applying the third criterion ("non-prejudicial to programmatic decision"), DOE needs to determine whether a proposed interim action would tend to determine subsequent programmatic development or limit programmatic alternatives, as these types of actions could not be taken until a ROD were issued.

- In general, interim actions of relatively limited scope or scale that have only local utility are unlikely to prejudice programmatic development or decisions. A number of related interim actions, however, when considered collectively could unduly influence programmatic decision-making. For example, proceeding with a number of decentralized waste treatment projects could prejudice the choice of programmatic options involving centralized treatment.

- In the case of a site-wide EIS[5], ongoing site operations are not considered interim actions and may continue. Ongoing site operations are considered under No Action.

See Exhibit 3 for a diagram of steps in the NEPA review process for interim actions for programmatic EISs.

Case Studies of the NEPA Process for Interim Actions to Programmatic EISs

A proposed interim action satisfies criteria (1) and (3) in Section 1506.1(c) when the action neither is affected by nor affects the program. An example of such an interim action was the proposed disposal of a limited quantity of mixed-waste from DOE and other Federal facilities at the Nevada Test Site (NTS) while mixed-waste disposal approaches were being considered system-wide in DOE's *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DOE/EIS-0200, May 1997). The interim action was proposed to provide for short-term waste disposal needs and was judged appropriate because its scope was constrained by limiting the volume of waste to be disposed of and the period over which disposal would occur. No decision based on the Waste Management Programmatic EIS was foreseen to be in conflict with the interim decision for waste disposal at NTS. Likewise, because the interim action would not require a large capital expenditure, the interim action would not limit subsequent development at NTS or alternative sites, nor would it limit the choice of programmatic alternatives considered. Criterion (2) in Section 1506.1(c) was met by a site-wide EIS for NTS (*Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations*

[5] DOE considers site-wide NEPA reviews to be programmatic in nature (although site-wide EISs are not necessarily "required programmatic EISs" within the meaning of Section 1506.1(c)).

in the State of Nevada, DOE/EIS-0243, August 1996) that adequately analyzed past, present, and reasonably foreseeable future mixed-waste disposal activities at the site.

As another example, in April 1996, a U.S. District Court ruled that DOE could proceed with a new major nuclear defense program facility, the Dual Axis Radiographic Hydrodynamic Test facility, at the Los Alamos National Laboratory as an interim action (based on a ROD for the project-specific EIS, *Final Environmental Impact Statement (EIS), Dual Axis Radiographic Hydrodynamic Test Facility*, DOE/EIS-0228, May 1995) while two programmatic EISs were being prepared (*Final Programmatic Environmental Impact Statement for Stockpile Stewardship and Management*, DOE/EIS-0236, September 1996; *Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory*, DOE/EIS-0238, January 1999). In considering the criteria for valid interim actions, the Court found that DOE had adequately demonstrated that the new facility would be useful notwithstanding the range of alternatives considered in the two programmatic EISs.

Interim Action Determination

The preceding guidance describes the key considerations necessary to determine whether an action that is within the scope of an ongoing NEPA review may proceed as an interim action. Under DOE's NEPA Order, 451.1B, Section 5.a.(12), Secretarial Officers and Heads of Field Organizations have the responsibility to determine whether an interim action is clearly allowable under DOE's NEPA regulations and should factor these considerations into a project's planning process. When it is not clear whether an interim action can proceed, a Secretarial Officer or Head of Field Organization is to provide the Assistant Secretary for Environment, Safety and Health (EH-1) with a recommendation for a determination, and EH-1 will decide, in consultation with the manager, whether the interim action may be taken. The exception to this is that the Administrator, National Nuclear Security Administration (NNSA), makes all determinations concerning NNSA interim actions, consulting with EH-1, as appropriate (DOE O 451.1B, Sections 3 and 6).

EXHIBIT 1

Council on Environmental Quality Regulations Implementing the Procedural Provisions of NEPA 40 CFR 1506.1

1506.1 Limitations on actions during NEPA process.

(a) Until an agency issues a record of decision as provided in 40 CFR 1505.2 (except as provided in paragraph (c) of this section), no action concerning the proposal shall be taken which would:

(1) Have an adverse environmental impact; or
(2) Limit the choice of reasonable alternatives.

(b) If an agency is considering an application from a non-federal entity and is aware that the applicant is about to take an action within the agency's jurisdiction that would meet either of the criteria in paragraph (a) of this section, then the agency shall promptly notify the applicant that the agency will take appropriate action to insure that the objectives and procedures of NEPA are achieved.

(c) While work on a required program environmental impact statement is in progress and the action is not covered by an existing program statement, agencies shall not undertake in the interim any major Federal action covered by the program which may significantly affect the quality of the human environment unless such action:

(1) Is justified independently of the program;
(2) Is itself accompanied by an adequate environmental impact statement; and
(3) Will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives.

(d) This section does not preclude development by applicants of plans or designs or performance of other work necessary to support an application for Federal, State or local permits or assistance. Nothing in this section shall preclude Rural Electrification Administration approval of minimal expenditures not affecting the environment
(e.g., long leadtime equipment and purchase options) made by non-governmental entities seeking loan guarantees from the Administration.

EXHIBIT 2

Department of Energy
National Environmental Policy Act Implementing Provisions
10 CFR 1021

Sec. 1021.104 Definitions.

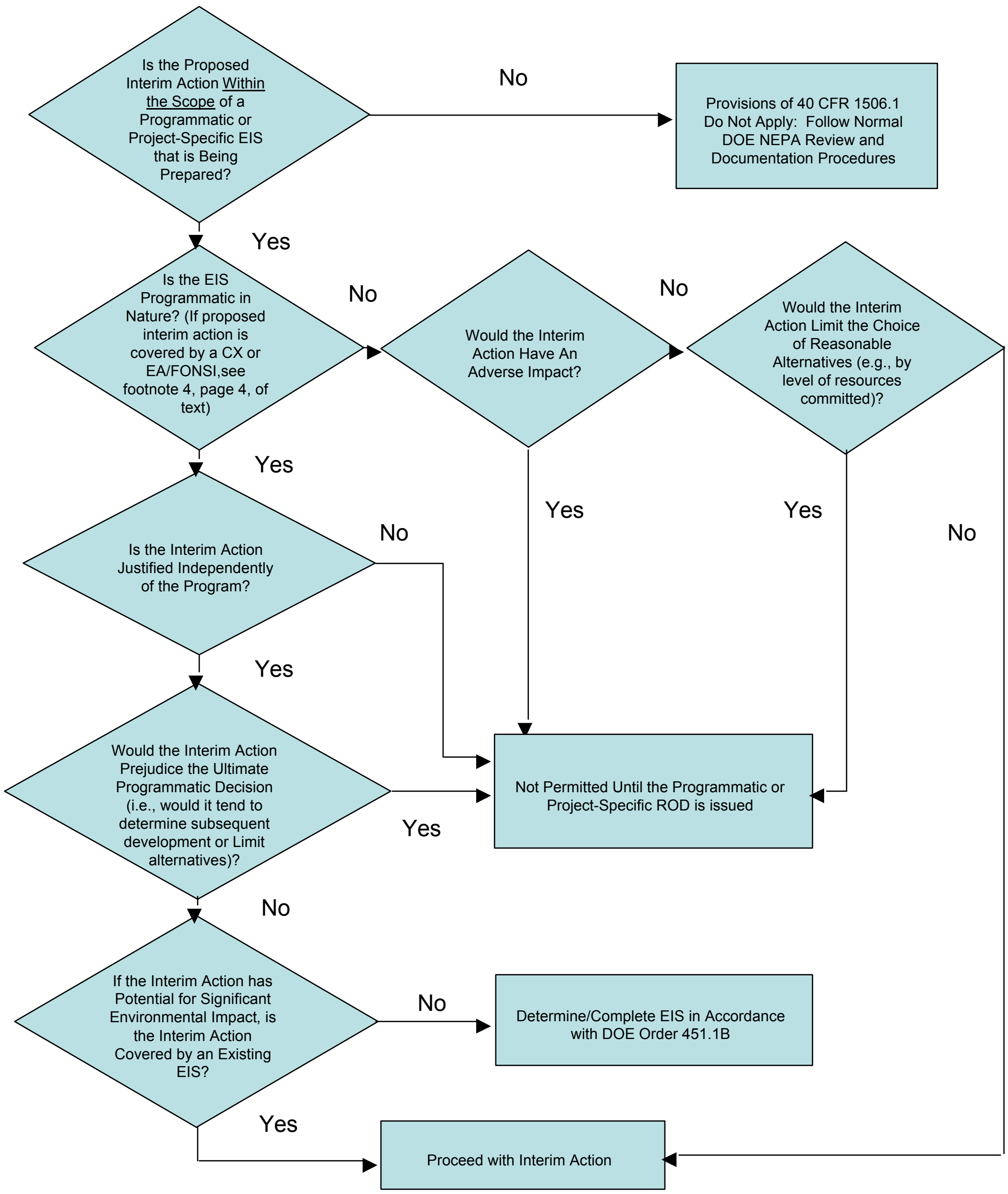
Interim action means an action concerning a proposal that is the subject of an ongoing EIS and that DOE proposes to take before the ROD is issued, and that is permissible under 40 CFR 1506.1: Limitations on actions during the NEPA process.

Sec. 1021.211 Interim actions: Limitations on actions during the NEPA process.

While DOE is preparing an EIS that is required under Sec.1021.300(a) of this part, DOE shall take no action concerning the proposal that is the subject of the EIS before issuing an ROD, except as provided at 40 CFR 1506.1. Actions that are covered by, or are a part of, a DOE proposal for which an EIS is being prepared shall not be categorically excluded under subpart D of these regulations unless they qualify as interim actions under 40 CFR 1506.1.

Exhibit 3

Steps to Follow for Determining Whether Actions May Proceed During the NEPA Process: Interim Actions



Friday, November 19, 2010 Mello aff3, par 95, ref 78

Obama Nuke Spending Plan Up – Again

 By 2010 John Fleck
Albuquerque Journal Journal Staff Writer

The Obama administration on Thursday laid out a new nuclear weapons spending plan that is 20 percent higher than the budgets left by the Bush administration and 5 to 6 percent higher than the administration spending plan last spring.

Included is an acknowledgment that a proposed new Los Alamos plutonium lab complex, originally budgeted at $600 million when it was approved in 2004, could cost as much as $5.8 billion by the time it is completed in 2020.

The plan projects spending $85 billion over the next decade for the National Nuclear Security Administration, the agency that funds and oversees nuclear weapons research and development at Sandia and Los Alamos labs in New Mexico.

The proposed budget increase, made public as part of the administration's campaign to win support for an arms control treaty with Russia, includes money to cover rising pension costs at Los Alamos and Sandia national laboratories, along with additional money for refurbishing aging nuclear weapons.

The pledge to push for increased spending was unusual, coming two months before the administration's traditional February budget release.

The carrot of additional money for the labs and other parts of the nuclear weapons program came with a stick, however — the suggestion that if the Senate does not act now, during the lame duck session, the chances for the additional funding may diminish.

"We have an opportunity to ratify this treaty and to lock in consensus on modernization funding," Secretary of State Hillary Clinton told reporters during a Wednesday morning briefing.

Clinton's comments came as Senate Republicans, led by Sen. Jon Kyl, R-Ariz., suggested action on the treaty be put off until next year, when a new Congress takes office.

The numbers made public show continued growth in the cost of major nuclear facilities in New Mexico and Tennessee, but don't specify how the rest of the additional money would be distributed among nuclear weapons research and manufacturing sites around the country.

One project singled out in the new data is the Los Alamos Chemistry and Metallurgy Research Replacement building. Last February, federal officials said they had no solid estimate of its cost because design work is still under way, but put a $3.4 billion "placeholder" in the federal budget. According to numbers made public Thursday, with 45 percent of the design work on the building complete, the estimated project cost is now between $3.7 billion and $5.8 billion.

The project is a victim of "early optimism bias," common to complex, one-of-a-kind technical efforts, according to Don Cook, the head of the Office of Defense Programs in the National Nuclear Security Administration.

Cook, a former Sandia Labs manager who now oversees the agency's nuclear work, said in a recent interview that efforts are under way to come up with a clearer picture of how much the massive concrete complex will cost.

One reason for the increase in estimated cost is the need to make it safe in the event of an earthquake.

Critics say cost figures should be more carefully nailed down before Congress commits to the building, which would be the largest public construction project in New Mexico history.

With the rising costs, a clear-eyed look at other options to meet the nuclear weapons complex is needed, said Greg Mello, head of the Albuquerque-based Los Alamos Study Group. Mello's group is suing the federal government, alleging it has failed to fully consider alternatives to the project before proceeding.

"It's hard to believe that at these prices there's not cheaper alternatives," Mello said Thursday.

The administration also released revised numbers showing the cost of the new Uranium Processing Facility at the Y-12 nuclear weapons plant in Tennessee has risen to somewhere between $4.2 billion and $6.5 billion. That is up from an estimated cost range of $1.4 billion to $3.5 billion last February.

Critics have questioned whether the government can afford to build both multibillion dollar projects simultaneously. The White House, in a statement, said that is the plan. "The Administration is committed to requesting the funds necessary to ensure completion of these facilities."

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The White House

Office of the Press Secretary

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Fact Sheet: An Enduring Commitment to the U.S. Nuclear Deterrent

President Obama has made an extraordinary commitment to ensure the modernization of our nuclear infrastructure, which had been neglected for years before he took office. Today, the Administration once again demonstrates that commitment with the release of its plans to invest more than $85 billion over the next decade to modernize the U.S. nuclear weapons complex that supports our deterrent. This represents a $4.1 billion increase over the next five years relative to the plan provided to Congress in May. This level of funding is unprecedented since the end of the Cold War.

In the five years preceding the start of this Administration, the National Nuclear Security Administration (NNSA) – charged with sustaining America's aging nuclear complex and stockpile – lost 20 percent of its purchasing power. As part of the 2010 Nuclear Posture Review, the Administration made a commitment to modernize our nuclear arsenal and the complex that supports it. To begin this effort, the President requested $7 billion for NNSA in fiscal year 2011 (FY 2011) – an increase of nearly 10 percent over the prior year.

Today's release of updated investment plans (in an update to the *'Section 1251 Report to Congress'*) shows this Administration's commitment to requesting the funding needed to sustain and modernize the nuclear complex. In particular, the Administration plans will:

- Add nearly $600 million in funding for FY 2012, resulting in a total planned FY 2012 budget request of $7.6 billion for NNSA weapons activities;
- Increase funding by $4.1 billion increase over the next five years relative to the plan provided to Congress in May – including an additional $340 million for the Uranium Processing Facility (Tennessee) and the Chemistry and Metallurgy Research Replacement (CMRR) facility (New Mexico); and
- Propose spending more than $85 billion for NNSA weapons activities over the next decade.

The above plans provide the best current estimate of costs for the nuclear weapons stockpile and infrastructure. As the UPF and CMRR facilities are only at the 45 percent design level, the Administration recognizes that the costs could change over time. At the present time, the range for the Total Project Cost for CMRR is $3.7 billion to $5.8 billion and the range for UPF is $4.2 billion to $6.5 billion. The Administration is committed to requesting the funds necessary to ensure completion of these facilities. The potential additional costs associated with these facilities are shown in the table below.

Planned Projections for Weapons Stockpile and Infrastructure Spending
(*then-year dollars in billions*)

Fiscal Year										
FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
6.4	7.0	7.6	7.9	8.4	8.7	8.9	8.9 – 9.0	9.2 – 9.3	9.4– 9.6	9.4– 9.8