Comments on the Draft Environmental Impact Statement For the Proposed Chemical and Metallurgical Research Building Replacement Project

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Submitted by
Jay Coghlan, Director
Nuclear Watch of New Mexico

Submitted to
Ms. Elizabeth Withers
EIS Document Manager
U.S. DOE/NNSA Los Alamos Site Office

Dear Ms. Withers,

Nuclear Watch of New Mexico (NWNM) is pleased to submit the following comments on the National Nuclear Security Administration's (NNSA's) draft environmental impact statement (hereinafter the "DEIS") for its proposed Chemical and Metallurgical Research Building Replacement Project (the "CMRR") at the Los Alamos National Laboratory.

NNSA Predetermination

The NNSA has already, in our view perhaps illegally, predetermined the outcome of the CMRR NEPA process. Council on Environmental Quality Regulations, Part 1506, §1506.1 "Limitations on actions during NEPA process" states:

(a) Until an agency issues a record of decision as provided in Sec. 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) [Not applicable.]

(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: ….

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.

The NNSA has exceeded these proscribed limits by requesting in the DOE 2004 Congressional Budget Request $1.7 million for actual construction to start in 2Q 2004 (i.e., as early as New Year's 2004) of "light lab/office buildings" for the CMRR. We have no problem with appropriations requests for design work, indeed that is standard operating procedure. What we do object to is the request for funds for actual construction, which we believe is a clear signal that the NNSA has predetermined that it will proceed with the CMRR Project in advance of the outcome of the NEPA process and its related Record of Decision. We look forward to credible explanation of this in the Final CMRR EIS.

Our conviction is further reinforced by a "Light Laboratory Office Building Request for Information" posted at the LANL Procurement website, which describes the CMRR Project. First of off all this request states that "[a] replacement facility is proposed to be constructed at Technical Area-5 (TA-55)." There is no mention of TA-6, thus making apparent the hollowness of the CMRR DEIS's strawmen Alternatives #2 (Greenfield Alternative to build at TA-6) and #4 (Hybrid Alternative at TA-6). In reality, of course, this is not surprising given that the DOE 2004 Congressional Budget Request states that one of the "major CMRR scope elements resulting from INP [Integrated Nuclear Planning] activities [is]… overflow capacity for PF-4." This is no small project, as the request indicates that "[a]pproximately seventy thousand (70,000) net square feet of office space and twenty thousand (20,000) net square feet of laboratory space will be required in a single building." Nor is it is cheap at an estimated $45 million. Nor is it somehow separate and discrete from the rest of the CMRR project, but is instead integral to it: "[t]he support structure(s) will house hot water heating, sanitary sewer, and chilled water for the entire CMRR project, not just LLOB [Light Laboratory/Office Building]."

In short, the NNSA has already effectively knocked out two of the four alternatives (TA-6 as explained above). It has effectively eliminated as well the No Action Alternative of not proceeding with the CMRR Project at all through its prejudicial action of requesting appropriations for actual construction of the LLOB and soliciting construction contractor's information in advance of a record of decision.

Mission and Need for the CMR Replacement Project

In NWNM's view there is little in the way of mission and need for the CMR Replacement Project. This view is based, in part, on the apparent long-term stability of Pu-239 as explained below. It is also based on our reading of the 1970 NonProliferation Treaty (NPT), Article VI, in which the nuclear weapons states pledged to "pursue negotiations in good faith on effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament…" In turn, Article VI of our own Constitution clearly stipulates that international treaties are to be enshrined as the supreme law of the land.

Moreover, at the 2000 NPT Review Conference, the United States and the other declared nuclear weapons powers made an "unequivocal commitment" to end the arms race and negotiate disarmament. They also agreed to institute the principle of irreversibility in nuclear disarmament and related arms control and reduction measures; make concrete measures to reduce the operational status of nuclear weapons; increase transparency regarding nuclear weapons capabilities; and create a diminishing role for nuclear weapons in security policies. The recently signed Bush/Putin Strategic Offensive Reduction Treaty, with its complete lack of scheduled dismantlements and shifting of warheads from operational status to a "responsive reserve" from

which they can be withdrawn, does not meet the requirement of NPT Article VI. Further, the new Nuclear Posture Review has expanded the role of potential use of nuclear weapons by the U.S. and the number of countries to be potentially targeted.

> The Federal Register 7/23/02 Notice of Intent for the CMR Replacement Project EIS states:
> 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.

Directed Stockpile Work is the largest budget category under the NNSA's Total Weapons Activities, under which extensively planned Stockpile Life Extension Programs for each of the existing weapons systems in the "enduring" stockpile are being implemented. The aim of these programs is to preserve the operational life of each weapons system for at least 30 years. Far from the stated rationale of merely maintaining the safety and reliability of the stockpile in the absence of full-scale testing, these programs are aggressively introducing major modifications and possible new designs that will improve accuracy and military effectiveness in order to meet "changing military requirements." The weapons labs themselves now describe the stockpile as "evolving," in contrast to simply "enduring." One of the stated objectives of Directed Stockpile Work is to "provide the capability to realize new weapons, if they are needed." This will now likely be realized in the near-term future give congressional approval of funding for the Robust Nuclear Earth Penetrator and the overturning of the decade-old prohibition against the development of "mini-nukes." Finally, an expanded Phase 6 [Quantity Production and Stockpile Phase] has been established by the NNSA to indefinitely extend the life of all remaining nuclear weapons systems.

With respect to "campaign activities" at LANL, it is worthy of note that the "target" stated by the lab for its plutonium pit campaign is to "[r]e-establish a robust pit manufacturing capability to produce stockpiled and *new-design pits without underground testing*." LANL FY01 Institutional Plan, p. 31, emphasis added. The express intent of the Comprehensive Test Ban Treaty, which would cut off full-scale underground testing, is to halt the continuing advancement of nuclear weapons designs. Although the U.S. has failed to ratify the CTBT, it has to date observed a testing moratorium. Apparently, through technical experimental and simulation advances, LANL now seeks to circumvent the intent of the CTBT.

It is obvious that the CMR Replacement Project will be tightly bound to both LANL's Directed Stockpile Work and to the lab's plutonium pit production campaign. Further, it will be complicit in this over the long-term given its anticipated 50-year operational life. With this in mind, the Final EIS should discuss the Project's roles in either supporting or conflicting with NPT Article VI and the intent of the CTBT. Further, the No Action Alternative, instead of being considered as merely another NEPA requirement, should be vigorously pursued. In NWNM's view, this Project has no more justification (and arguably less) than its preceding proposal, the Special Nuclear Materials Research and Development Laboratory, which was terminated over a decade ago. In combination with the potential risks involved (see risk analysis section below) the CMR Replacement project should not go forward.

The Need for an Integrated Technical Area-55 EIS?

In the DEIS at p. 1-10 the NNSA rejects NEPA consideration of all TA-55 and "Integrated Nuclear Planning" activities. In this commentator's view this is improper segmentation under NEPA. The DEIS states:

> Recognizing the need for CMRR to be integrated with other contemplated actions, near and long term, affecting the nuclear mission capabilities at LANL, NNSA and UC at LANL developed the Integrated Nuclear Planning (INP) process. INP is intended to provide an integrated, coordinated plan for the consolidation of LANL nuclear facility construction, refurbishment and upgrade, and retirement activities. As such, INP is a planning process, not an overarching construction project, and is a tool used by NNSA and UC at LANL to ensure effective, efficient integration of multiple, distinct stand-alone projects and activities related to or affecting LANL nuclear facilities capabilities. As individual elements or activities associated with INP become mature for decision and implementation, each element and activity moves ahead in the planning, budgeting, and NEPA compliance process on its own merits. DEIS p. 1-10.

There are many problems with the above NNSA statement:

- First, as a past baseline, the 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement and the 1999 LANL Site-Wide Environmental Impact Statement do not capture the amount and degree of changes the NNSA is contemplating for TA-55.

- It is misleading for the NNSA to suggest in the first sentence that the perceived need for the CMRR is the primary driver for INP. The 9/26/01 LANL Ten-Year Comprehensive Site Plan (TYCSP) makes clear that big plans are afoot for Technical Area-55. The TYSCSP states:

> The INP effort is to provide an integrated, coordinated plan for the consolidation of laboratory nuclear facility construction, refurbishment/upgrade, and retirement activities. The focus is on programs and activities involving special nuclear materials. The overall plan for the INP is that it be comprehensive, incorporating considerations for all affected Laboratory sites and facilities. The developed plan will establish priorities for these types of activities based on comprehensive cost/benefit and risk evaluation considerations as well as considerations driven by programmatic requirements over the next 20 years… The INP is an overall plan; it is not in itself a construction project but a plan that will encompass major construction projects at the laboratory…
>
> Proposed INP Project elements:
> - CMR Replacement Project
> - TA-18 Relocation Project
> - TA-55 Infrastructure Investment
> - Pit Radiography
> - NMSSUP [Nuclear Materials Safeguard and Security Upgrade Project] Phase II
> - Radioactive Liquid Waste Treatment Facility (RLWTF) Upgrade
>
> 9/26/01 LANL TYCSP, pp. IV-24 through 26.

• The NNSA maintains that each possible project at TA-55 is "stand alone." First of all there is the simple matter that many of these facilities are likely to be connected to one another via underground tunnels. More important is the fact that they will likely have overlapping missions between the facilities. The best example that I am aware of comes from the 2004 DOE Congressional Budget Request, which states that "[t]he scope of 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: … overflow capacity for PF-4." There are two points to be made here:
1) We believe this buttresses our argument that a TA-55 EIS is required as it all stems from "integrated planning" that demonstrates the "connectedness" of planned major federal actions at that Technical Area; and
2) There is no mention of overflow capacity for PF-4 in the CMRR DEIS, thus demonstrating the document's illegitimacy. As PF-4 is the building for plutonium pit production clearly there is a strong public interest in it. The CMRR Final EIS should clearly spell out what might be involved in "overflow capacity for PF-4" at the CMRR. Does this entail elements of actual pit production, anywhere in range from virgin fabrication to "pit rebuilds"? We maintain that the CMRR DEIS is grossly deficient by its omission of having discussed this.

• The February 2002 LANL Biosafety Level-3 Environmental Assessment mentions "the possible construction of a new building for pit manufacturing (these actions are speculative at this time but are currently under discussion)." NEPA requires forward-looking documents and consideration as early as feasible. We contend that the fact that discussions already at least a year and a half old have taken place, in combination with the other factors mentioned herein, necessitate a TA-55 EIS.

• For NEPA compliance purposes it is not material whether or not the INP is a "construction plan." NEPA bars segmentation of connected actions in its analyses and considerations. Because all of these actions appear to be in at least conceptual planning stages (therefore reasonably foreseeable) and are taking place in the same geographical and site-specific location (Technical Area-55 or in close proximity) it would seem that proper compliance with NEPA would require something tantamount to a "TA-55 EIS." When I raised this point at the 8/13/02 CMR Replacement Project public scoping meeting one DOE official responded that "construction schedules would be different and we wouldn't want construction workers tripping over each other" (paraphrased). This commentator has extensive construction experience and some familiarity with NEPA requirements. It is obvious that construction schedules and NEPA analyses are two distinctly different things. Construction schedules are a management concern and do not rise to the level of federal environmental law requirements. NWNM reasserts that if multiple projects in the same locale and within a foreseeable time period (say ten years or less), are arguably related to one other (and even possibly physically linked to each other via tunnels or piping), then those projects should be bundled together and analyzed in a common NEPA document. To do less is to skirt NEPA requirements for analyses and consideration of interconnected actions and potential cumulative effects. NWNM further asserts that the burden is on the NNSA in the Final EIS to credibly defend why an integrated "TA-55 EIS" is not required. The discussion in the DEIS does not satisfy us.

Costs and Schedules

The CMRR DEIS makes no mention of costs. NEPA requires discussion of irretrievable resources and informed decision making. In August 2002 costs were reported in the regional media as being as high as $955 million. Previously the LANL 2000 Comprehensive Site Plan had given a figure of $865 million. However, in the FY04 DOE budget costs are $600 million where the Total Estimated Cost "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."

The NNSA is on very shaky ground here. First of all we have the National Ignition Facility at the Lawrence Livermore National Laboratory, another University of California-operated nuclear weapons lab, which has experienced massive cost overruns and schedule slippages (and still faces technical difficulties, perhaps unresolvable). At LANL we have the Dual Axis Radiographic Hydrodynamic Testing Facility that went from initial cost estimates of $80 million in the late 1980's to $250 million today and is not on schedule as LANL/UC claim, as the recent DOE Inspector General's audit makes clear. We also have perhaps up to $240 million put into upgrades for the now likely-to-be abandoned old CMR Building. Finally, we have the nationally publicized LANL/UC fiscal scandals currently under congressional investigation. For LANL and the NNSA to assert that this magnitude of savings can be realized through a "design-build approach" when UC and the NNSA have a demonstrated track record of constant cost overruns even when projects are reputedly thoroughly planned in advance is, we believe, highly deceiving. It would be strongly in the public's interest and respectful of taxpayers' dollars to have open discussion of both costs and strategies to constrain costs in the Final EIS. The DEIS failed to answer my questions on costs that I had submitted in scoping comments.

The DEIS says at p. 2-25 that construction of office space and light labs will begin in late 2004. The DOE FY04 Congressional Budget Request states that construction will start in the 2nd quarter of FY 2004 (i.e., as early as New Year's). Which is it?

Large Containment Vessels

The Federal Register 7/23/02 Notice of Intent (NOI) for the CMR Replacement Project EIS states that "continued support of LANL's existing and evolving missions roles are anticipated to require additional capabilities such as the ability to handle large containment vessels in support of Dynamic Experiments."

In context that statement implies that large containment vessels will be handled in the proposed facility. The EIS needs to clarify for what use. In response to my question at the August 13 public scoping meeting LANL personnel declared that Dynamic Experiments (explosive experiments involving radioactive materials, hence the need for containment) would not actually be conducted in the Replacement Building. Instead, handling of the containment vessels would involve washout and cleanup. That needs further elaboration in the Final EIS.

However, this doesn't make complete sense to this commentator. Why doesn't washout take place closer to where these tests will actually take place? Presumably these would be at the Dual Axis Radiographic Hydrotest Facility (DARHT) in Technical Area 15, the Los Alamos Neutron Science Center in TA-53 and the future Advanced Hydrotest Facility. The LANL Site-Wide EIS

stated that the lab's number of Dynamic Experiments (including hydrotests) was slated to triple under expanded nuclear weapons activities. More likely, in this commentator's view, the real purpose of any containment vessel washout in the Replacement Building would be for shot debris analysis. This would tie back to the NOI's statement that "[m]ission critical CMR capabilities at LANL support NNSA's and management strategic objectives; these capabilities are necessary to support the current and future directed stockpile work and campaign activities conducted at LANL." As already discussed above, directed stockpile work consists of an aggressive schedule of nuclear weapons refurbishments, a number of which arguably result in "new" nuclear weapons, and possible new designs. In this context, it makes sense that containment vessel washout would take place at the CMR Replacement Building, which will presumably be LANL's premier facility for analytical chemistry and radioassay work on special nuclear materials. Shot debris analysis there would directly aid and support the thrust of directed stockpile work, with a particular focus on pit production (by virtue of co-location). If this line of speculation is correct, the Final EIS should so disclose.

One thing that particularly alarms this commentator is the two-word phrase "vessel loading." What does this mean? In the extreme it could mean loading the containment vessel with surrogate plutonium pits ready for hydrotest detonation at the firing sites. This, of course, means the presence of high explosives in combination with special nuclear materials. At DEIS p. C-13 a risk analysis is performed for a "process explosion." However, this does not involve the possible presence of high explosives within the CMRR. The Final EIS should fully explain what is meant by and what is involved in "vessel loading." Further, the DEIS's one paragraph description of "Large Containment Vessel Handling Capability" is completely unsatisfactory and should be greatly expanded and elaborated upon.

Other related issues that the Final EIS should explore are:

- Analysis of the risk of transport of these loaded containment vessels from the CMR Replacement Project to the firing sites;
- How cleanup residues are to be treated and disposed of. What portion is liquid, what portion is mixed (both radioactive and hazardous) and therefore subject to the Resource Conservation and Recovery Act? Where would mixed wastes be disposed of (since such disposal is prohibited at LANL)? What portion would be transuranic wastes; what portion low-level wastes?
- What is the need for cleanout at the CMR Replacement Project when other cleanout facilities already exist? What are those facilities?
- What kind of floor space would be needed at the Replacement Building for containment vessel washout? The EIS should provide a generalized schematic.

The CMR Replacement Project and the Future Advanced Hydrotest Facility

The draft EIS needs to disclose and discuss any relationship between the CMR Replacement Project and the future Advanced Hydrotest Facility (AHF). That relationship (if any) should be discussed in general, and particularly in the event that the CMR Replacement Project is to "handle" any Dynamic Experiments containment vessels from the AHF. The 9/26/01 LANL Ten-Year Comprehensive Site Plan states that for the AHF "Critical Decision Zero (CD-)) documentation is currently being developed and is planned for submittal to DOE in mid-FY 2002" (p. II-13). Thus there is currency in time with this issue.

This future link between the CMR Replacement Project and the AHF is not just mere speculation on the part of this commentator. The 9/26/01 LANL Ten-Year Comprehensive Site Plan, at Table II-2: "Summary Missions, Alternatives and Requirements Table," under "Surveillance" identifies TA-55's plutonium facility as the functional site for plutonium pit disassembly and recovery of special nuclear materials. Under "Alternatives/Options" the table goes on to say "[i]ncreased numbers of retired weapons and increased component age will necessitate the additional diagnostic capabilities in the 'hot' laboratory space." Presumably, the CMR Replacement Project would provide much of that 'hot' laboratory space.

Under "Facility Strategies" to be addressed the table goes on to say "[i]dentify capability and space needs to conduct surveillance program that integrate the Stockpile Stewardship needs with Stockpile Maintenance (e.g. connect to the Advanced Hydrotest Facility (AHF) program)." Thus this commentator believes that the future link between the CMR Replacement Project and the future AHF is demonstrated. The CMRR Final EIS should discuss and disclose it.

Future CMRR Missions

- At p. S-2 the DEIS states that the Chemical and Metallurgical Research Replacement (CMRR) Facility is to be oversized by 30% for "mission contingency space." The Final EIS should expand on what anticipated future contingencies might be.

- "Of particular interest are options for relocating and consolidating some of the Lawrence Livermore National Laboratory Hazard Category 2 operations to LANL to support long-term Defense Program needs." DEIS S-22. What are these operations? Will they come from the LLNL "Superblock"?

- Wing 9 of the old CMR Building had a number of hot cells for particularly dangerous work with radioactive materials. The LANL Ten-Year Comprehensive Site Plan notes that one of the mission needs that the old CMP Building supplied was "[s]hielded hot-cell facility for plutonium weapons evaluation." Will the Replacement Project also have hot cells? The emissions table at DEIS p. 4-41 list emissions of the noble gases krypton and xenon, a possible signature of either reprocessing and/or hot cell activities. The Final EIS should explain what these activities, if any, are, or, at a minimum, what types of operations would result in these particular types of emissions. If the CMRR is to indeed contain hot cells the Final EIS should provide a description of them, their related activities and a generalized schematic of hot cell floor space. If hot cells are indeed to be located within the CMRR the omission of their existence can only be construed as being deliberate in the DEIS.

- Presumably substantial work with Pu-238 would occur at the CMR Replacement Project. Given Pu-238 special hazards as a heavy gamma emitter, the draft EIS needs to discuss special precautions, such as shielding, taken with this material. This is underscored by past Pu-238 contamination and occupational doses at PF-4.

- DEIS Table C-1 lists 27 activities conducted in the old CMR building as "CMR Activities Evaluated in the Hazards Analysis." These still do not adequately explained what "overflow capacity for PF-4" might be.

Potential Aging Effects on Plutonium

In this commentator's view the rationale for the Stockpile Stewardship Program (and its associated tens of billions of dollars) largely hinges on the future effects of aging on plutonium-239. This is directly relevant to the CMR Replacement Building(s), as presumably it would be the NNSA's premier facility for analytical chemistry and assay work on special nuclear materials. Also in this commentator's view, DOE unfortunately controls the debate on what those aging effects might be, and will likely play up any tiny degree of uncertainty in order to ensure the continuing flood of appropriations. If DOE were principled in this matter, it would disclose what is known to date and what can be reasonably projected on into the future. Further, because it has much to do with the need and mission of the CMR Replacement Project, DOE would disclose that in the Final EIS.

This commentator has compiled the following from DOE documents and other sources indicating that plutonium-239 is stable over a long period of time. Therefore, the safety and reliability of the U.S. nuclear weapons stockpile is assured for the long-term, at a minimum for the next half-century.

As a baseline: "The stockpile is currently judged to be safe and reliable by DOE." 1996 Stockpile Stewardship and Management (SSM) PEIS Vol. I at p. 2-3. In all subsequent years the three lab directors have certified that the stockpile has remained safe and reliable. Potential future problems in nuclear weapons safety and reliability can be divided into problems with nuclear and nonnuclear components. However, potential problems with nonnuclear components can be ruled out as not being germane to the core debate over the SSM Program. "For nonnuclear components, a significant amount of functional test data is acquired during manufacture and is then used to begin building a statistical estimate of component reliability. Subsequent laboratory and flight testing in the surveillance program accumulates additional data that include the effects of aging and exposure to stockpile environments. Thus, over time, high confidence in the safety and reliability of nonnuclear components and subsystems can be established." SSM PEIS Summary, p. 19.

The SSM PEIS goes on: "The situation is not the same for nuclear components and the assessment of their nuclear performance... In the past, [full-scale] nuclear testing filled the gaps in basic understanding of the complex physics phenomena; it provided high confidence in the certification of nuclear safety and performance. Without nuclear testing, science-based stockpile stewardship will focus on obtaining the more accurate scientific and experimental data that will be needed for more accurate computer simulations of nuclear performance." Ibid. Hence, the overarching justification for the SSM Program lies in future uncertainty over aging effects on nuclear components. However, language in supporting documents for the PEIS indicates that there is little uncertainty for the foreseeable future.

For the SSM PEIS DOE prepared the *Stockpile Management Preferred Alternatives Report* and the *Analysis of Stockpile Management Alternatives Report*, both released in July 1996. Under "Capacity Assumptions and Contingency Options": "Only replacement of pits destroyed in routine surveillance testing is expected until a near term life limiting phenomenon is observed in stockpile pits. Most pit requirements during weapon refurbishment are expected to be satisfied by requalification and reuse of existing pits *since historical pit surveillance data and pit*

life studies do not predict a near-term problem." Stockpile Management Preferred Alternatives Report, July 1996, p.12. Emphasis added.

"Most nuclear weapons in the stockpile were designed for a minimum lifetime of 20 years. However, *experience indicates that weapons can remain in the stockpile well beyond their minimum design lifetime.* Two nuclear weapon systems remained in the stockpile for more than 30 years." Analysis of Stockpile Management Alternatives, July 1996, p. 7-8. Emphasis added. Under "Primary [the nuclear package with high explosives] Requirements": "Known aging effects of high explosive components results in an estimated stockpile life of 30 to 40 years based on current understanding of high explosive aging." Ibid, p. 7-11.

"*No age related problem has been observed in pits up to 30 years in age*, though very little data exists for pits older than 25 years. In addition, no age related problem is expected until well past the START II [the second Strategic Arms Reduction Treaty] implementation date [year 2003]." Ibid., p. 7-12. Emphasis added. Under "Conclusion": "Nuclear components (pits and secondaries) are expected to have service lives significantly in excess of their minimum design life of twenty to twenty-five years." Ibid., p. 7-17.

Senior DOE officials have hinted that the buildup of helium gas as a result of plutonium decay could affect nuclear weapons performance in the near term. Again, this is contradicted by PEIS language. During the SSM PEIS public comment period, a commentator asked, "How long can pits remain in the stockpile before buildup of decay products becomes a design or handling concern?" DOE responded: "Modern nuclear weapons are designed with a minimum design life of 20 to 25 years. Based on existing surveillance data, DOE expects the pits to last at least this long, and probably considerably longer. However, very little historical and applicable data exists beyond 30 years. *With regard to the buildup of decay products alone, DOE does not currently believe this will become a problem in less than 50 years*..." SSM PEIS, Volume IV, p. 3-84. Emphasis added.

Since the release of the SSM PEIS Raymond Jeanios (professor of geophysics at UC Berkeley) published an article entitled "Science-Based Stockpile Stewardship" in *Physics Today*, December 2000. Some relevant quotes are:

> Perhaps the most important result from measurements is that Pu exhibits good crystalline order even after decades of aging.
>
> …on the nanometer scale, aging appears to have the same effect as a greater Ga [gallium] concentration, in that it shifts the Pu to a more stable configuration.
>
> The overall finding from a variety of observations… is that the Pu samples not only retain long-range order but actually get closer to the ideal crystal structure with increasing age. Annealing processes, perhaps related to those countering the crystal-structure disordering, appear to counteract radiation-induced damage and mitigate the initial buildup of He [helium] quite effectively, at least for Pu in the US stockpile.
>
> Surprisingly, however, the high explosive used in US weapons has been found to improve systematically with age in key measures of performance, such as yielding characteristics and detonation-front velocities.

> Thus, crucial primary-stage components that were initially subject to concern have been shown through the SSP to be robust as they age. Indeed, there is now consensus among specialists that the Pu pits in the US stockpile are stable over periods of at least 50-60 years, with the most recent studies suggesting a far longer period. More important than the indications of benign aging is the demonstration that the materials are now becoming understood in sufficient detail, and surveillance methods are becoming sensitive enough, to ensure that any signs of degradation will be observed in time to apply the necessary repairs or refurbishment.

Another point concerning the future effects of aging on plutonium: J. Carson Mark, former head of LANL's Theoretical Division (and an ardent arms control advocate), before his death personally told this commentator that the lab had the foresight some four decades ago to set aside weapons-grade Pu-239 for the express purpose of studying aging effects. Further, while pointing to Pu-239's long half-life (approximately 24,000 years), he stated that the big news was "no news." I subsequently requested from LANL data or conclusions from these "set aside" experiments," but was denied on the basis of classification. Nevertheless, I reiterate here that those conclusions are germane to the need and mission for the CMR Replacement Project and should be generally disclosed in the draft EIS as part of the Project's need and mission. It is self-serving for LANL and the NNSA to remain silent on these historic set aside experiments.

The May 2003 draft environmental impact statement for the Modern Pit Facility (MPF DEIS) now states that no aging effects impairing nuclear weapons safety and reliability have ever been found in pits up to 42 years of age. The MPF DEIS's Appendix G contains the undated draft report "Plutonium Aging: Implications for Pit Lifetimes" by J. Martz of LANL and A. Schwartz of LLNL. This draft report discusses ongoing "accelerated aging" tests that are to culminate in FY06 with a pit lifetime assessment based on old pit data and the accelerated aging program. This is completely germane to the CMRR DEIS as presumably these experiments are being carried out in the old CMR Building and also presumably will be transferred over time to the new CMRR.

This commentator is concerned that these experiments could be easily skewed, perhaps even deliberately, with the reportedly necessary input of data and use of computer modeling. The report further says that there will be internal and external reviewers. But who are these reviewers to be and will they be truly objective? And can the resulting data really be applied to the future safety and reliability of Pu-239 pits? If these experiments are indeed conceptually credible, what is the proper blend with Pu-238 that would assure valid results? As a heavy gamma emitter, how is it that Pu-238 would not skew data results? How long of a performance baseline is the NNSA attempting to establish for plutonium pits? A half century (when, given the referenced quotes above, that already seems assured)? A full 100 years? Would the NNSA purposively reach for such a lengthy performance baseline that it would be impossible to offer guarantees of safety and reliability? What or who is to ensure the objective and dispassionate analyses of and resulting conclusions from the data, when ultimately 10's or 100's of billions of dollars are in the balance for the Stockpile Stewardship Program? Who will be checking the checkers?

Environmental, Safety and Security Issues

• At p. 4-75 the DEIS mentions a possible "replacement facility" for the Waste Isolation Pilot Plant. 4-77. What WIPP Replacement Facility?

• At p. 4-75 the DEIS states that over 50 years LANL could reach 142% of available water capacity. It further states that Los Alamos County is seeking additional water supplies from the San Juan-Chama Transmountain Diversion Project. The Final EIS should elaborate on this as I don't believe that the 1999 LANL SWEIS adequately touched upon it. In any event it would need updating as the water supply crisis in New Mexico has deepened. Further, I believe that the subject of recycling water in the CMRR was not broached in the DEIS.

• The DEIS maintains that the Radioactive Liquid Waste Treatment Facility (RLWTF) will be sufficient for the disposal of the CMRR's liquid radioactive wastes. It is already noted that upgrades or even complete replacement of the RLWTF is an integral part of NNSA/LANL/UC Integrated Nuclear Planning, as is the CMRR itself. It is noted here that discussion of the CMRR's potential impacts on the RLWTF is quite skimpy in the DEIS and should be expanded in the Final EIS. For instance, what pretreatment would take place at the Replacement Project before liquid wastes are piped to TA-50? Would the piping be double piped? What tritiated liquid wastes might there be? If so, what portion of tritium might be reactor-produced or accelerator-produced?

• In response to citizen litigation, in 1996 a federal judge found that LANL had been in major violation of the Clean Air Act for over six years. Moreover, historic air emissions records for the CMR Building were often incomplete and often based on assumptions. Due to this history the Final EIS needs to be explicit as to how the Replacement Project would comply with the Clean Air Act rather than just simply making the assertion that it will.

• Under the threat of the Clean Air Act litigation mentioned above LANL personnel retrofitted the CMR Building with additional radioactive air emissions monitors. For the Wing 9 hot cells LANL personnel also installed air monitors for radioactive air emissions not necessarily governed by the Clean Air Act (perhaps for xenon and argon (?)). Would similar air monitoring devices be installed at the CMR Replacement Project?

• The NNSA should consult with the New Mexico Environment Department in order to ensure that no contaminated soils would be disturbed during construction of the CMRR.

Decontamination and Demolition of the Old CMR Building

The NOI states that the NNSA will evaluate "the potential decontamination and demolition of the entire existing CMR Building…" This needs to be reflected in the draft EIS and any subsequent Record of Decision. The Final EIS should consider and disclose the following, at a minimum:

• The waste streams that would emanate from D&D. What volumes are to be expected? What portions are to be disposed as conventional solid waste, hazardous, low-level radioactive, transuranic and mixed?

• With respect to conventional solid wastes, given that the Los Alamos County landfill is due to be soon closed, where would they go? With respect to mixed wastes, where will they go?

What is to be the expected impact, including volumes, upon the lab's "low-level" waste dump at TA-54 Area G? How might Area G's operating life be foreshortened by CMR wastes?

• The CMR Building surely contains significant amounts of special nuclear materials. Where do those inventories go? What are related transportation and security risks?

The CMRR DEIS Risk Analyses

On potential criticality accidents, at page C-5 the DEIS makes the assertion that "[f]or the CMRR EIS alternatives, the likelihood of an unsafe configuration and criticality is sufficiently small enough to exclude it from detailed consideration in the EIS." The Lawrence Livermore National Laboratory, the other UC-operated nuclear weapons laboratory, has had documented criticality safety infractions, and these have involved lesser amounts of special nuclear materials than LANL has historically handled. I also note the fairly recent criticality safety infractions at LANL's own Technical Area-18. In the accident analyses beginning at DEIS page C-6 it states that "[t]he material at risk is estimated to be approximately 13,228 pounds (6,0000 kilograms) of plutonium…", hence there is plenty of material to potentially spawn a criticality accident to begin with. Also, as an obvious matter the CMRR is classified as a Hazard Category 2 nuclear facility, meaning that there is the potential for significant onsite consequences in the event of an accident. To categorically assert that the "likelihood [of an criticality incident] is sufficiently small" without explanation and justification is to simply sweep this critical (pun intended) issue under the rug. The CMRR Final EIS should correct this serious deficiency with a cogent criticality risk analysis.

Under "Airplane Crash" the DEIS states that the "probability of an airplane crash during over flight is less than 10^{-6} and under DOE NEPA guidelines does not have to be considered in the EIS." For the sake of discussion here we accept it as fact that the probability of an *accidental* crash is that low. However, the problem, as we see it, is not with accidental crashes but rather with intentional crashes. That TA-55, as the sole current site for U.S. plutonium pit production would be an attractive terrorist target for attack by a highjacked plane is undeniable. As the DEIS states "NNSA's overall concept for TA-55 would have it contain all or at least most of the Security Category 1 nuclear operations needed for LANL operations" (p.1-10). Security Category 1 is the category that has the greatest mounts of sensitive materials. The TA-55 materials are presumably the most "attractive" type to would-be saboteurs precisely they involve plutonium and highly enriched uranium. The attractiveness of TA-55 as a target can only be enhanced by the co-location there of the CMRR Project and its own future Security Category 1 activities. The Final EIS must correct the DEIS's failure to discuss the risks of an intentional airplane crash. Its failure to do so is especially ironic given that the NNSA profits in appropriations while attempting to meet new proclaimed terrorist threats, but avoids including those potential terrorist threats in risk analyses of its own facilities. We respectfully suggest that the NNSA can't have it both ways.

It is extraordinary that the NNSA proposes to replace a 50-year old facility with a modern facility and that the replacement facility will have more than 40 times the amount of potential risk in the case of the most severe postulated accident (and, for that matter, three times the amount of transuranic waste generation). For the No Action Alternative, i.e. continuing operations at the old CMR Building, the DEIS predicts two latent cancer fatalities in the event of "fire in the main vault." For the preferred alternative, construction and operation of the CMRR

at TA-55, the DEIS predicts 83.9 latent cancer fatalities in the event of a "facility-wide spill" (DEIS p. C-13). This is indicative of the increased special nuclear materials inventory to be held in the CMRR and more generally indicative of the risks posed by expanding nuclear weapons operations at LANL. It also far exceeds the predicted latent cancer fatalities for the Modern Pit Facility, which has just been issued its own draft environmental impact statement (and calls into question as well the risk analyses in that document).

It is also interesting that the DEIS risk analysis chooses a somewhat arbitrary 50-mile radius for the "off-site population" for the purpose of calculating both person-rems and latent cancer fatalities. That 50 miles gives a population base of 302,130 people. If that radius were extended another mere 10 miles (why not?: fallout doesn't recognize an arbitrary radius) the population base would be more than 800,000 people and the potential latent cancer fatalities would go up accordingly.

It is astonishing that in the CMRR DEIS the risk analyses are limited to hypothetical events internal to the proposed facility (with the exception of an earthquake). Nowhere to be found is the risk that wildfire would pose to the facility, a mere three years after the catastrophic Cerro Grande Fire. Apparently the NNSA needs reminding that the draft LANL Site-Wide EIS lacked any wildfire analysis whatsoever and that it was public comment that compelled DOE to include it in the 1999 Final SWEIS. Lab officials have repeatedly stated how valuable that analysis was when the real thing broke out approximately a half year later. Given this history it is inexcusable, shortsighted and just plan wrong for the CMRR NEPA process to have no reference to the threat posed by wildfire. The Final EIS should so correct this with substantial discussion and consideration. Unfortunately, because of the drought (which may well be just a return toward average historic precipitation rates) the wildfire risk will not go away with just mitigation and management control measures.

Questions concerning the presence or not of hot cell operations at the CMRR have been previously asked in these comments. The DEIS gives estimates of krypton and xenon emissions. This begs the question of, if indeed there are to be CMRR hot cell operations, will there be other gaseous fission products (for example, but not limited to, iodine)? And then, if so, are the DEIS's risk analyses proper and correct? If not, the Final EIS should so correct.

Dr. Arjun Makhijani of the Institute for Energy and Environmental Research has submitted comprehensive comments on the CMRR DEIS's risk analyses. I refer the NNSA to them and also incorporate them here by reference.

- End of comments -

Respectfully submitted,

Jay Coghlan
Director