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Alliance for Nuclear Accountability

A national network of organizations working to address issues of nuclear weapons production and waste cleanup

Opposing Lawrence Livermore's Nuclear Revival
Comments on the LLNL Site Wide Environmental Impact Statement
Jim Bridgman, Program Director, Alliance for Nuclear Accountability
April 30, 2004

The Alliance for Nuclear Accountability is a national network of over thirty organizations working together to ensure quality cleanup of the nuclear weapons complex while trying to prevent future contamination and health effects by opposing unnecessary nuclear weapons research, development, production, testing, and above all their use.

1/04.01 The Alliance for Nuclear Accountability has long been a champion of public participation and recognizes this opportunity, required by the National Environmental Policy Act, to comment on the Department of Energy's plans for one of the nation's most significant nuclear weapons laboratories. The plans for Livermore contained in this bloated document speak volumes about the intended future mission of the nuclear weapons complex. The term "Stockpile Enrichment," not "Stockpile Stewardship" would more accurately reflect the ambitious and expensive course the Bush Administration have laid out for modernizing the arsenal and weapons complex in ways that far surpass a mission of stewardship for a declining arsenal.

2/33.01, 30.01 DOE's Stockpile Enrichment at Livermore includes plans to increase storage limits of plutonium from 1,500 to 3,300 pounds. What does this mean? Plutonium is about 10 times more toxic than nerve gas. Dispersion of just 3.5 ounces of plutonium could kill every person in a large office building. 3,300 pounds is enough for over 15,000 such dirty bombs and enough for over 500 nuclear warheads. Allowing this kind of material in an area like Livermore that has 20,000 families and a population density of 3,000 people per square mile for the purposes of "national security" is the height of irony and irresponsibility.

3/37.01 In addition to using this plutonium in experiments for the National Ignition Facility and AVLIS, the DOE wants Livermore to develop the production line prototype for a new Modern Pit Facility so it can try to figure out how to make the very messy job of creating plutonium pits, the cores or triggers of modern nuclear weapons, into a less messy one. DOE's plutonium pit production at Rocky Flats was shut down after an FBI raid in 1989 because of dangerous fires and immense environmental contamination costing US taxpayers more than $7 billion to partially clean up. The DOE wants Livermore to gin up some new plutonium pit production techniques using robotics so it can pretend that making nuclear weapons is not such a big deal, yet making nuclear weapons is, and always will be, a very big deal, whether its done in the United States or any other nation in the world.

(over)

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3/37.01 cont. Livermore is to help lay the groundwork for a new plutonium bomb plant that will cost taxpayers billions of dollars to construct, hundreds of millions to operate each year, and billions more to clean up. The Modern Pit Facility would, according to DOE plans, produce 125-450 pits per year to maintain a Cold War-sized nuclear arsenal. Yet, the United States is awash in plutonium pits, with over 10,000 intact warheads and another estimated 12,000-15,000 pits in storage at the Pantex plant in Texas. These pits are not falling apart as some Members of Congress claim. Studies by the DOE's own lab scientists have shown plutonium pits are lasting much longer than previously believed.

4/01.01 The United States should be reducing its arsenal, not building new weapons, as agreed to both in the recent Strategic Offensive Reductions Treaty between the United States and Russia and in the mandate to disarm its nuclear arsenals under Article VI of the Non-Proliferation Treaty, a treaty having more participants than any other treaty outside of the United Nations charter, and which the United States affirmed as recently as 2000 during the NPT review conference. Implementing reductions in the stockpile will enable the United States to jettison its older warheads, thus further lowering the average age of the stockpile and further delaying any need for new plutonium pits.

5/02.01 The DOE doesn't just want to ability to produce replacement warheads for a massive arsenal. It wants to have the ability to build new kinds of nuclear warheads, so-called "mini-nukes," new cruise missile warheads and other advanced concepts. Building such weapons could well lead to a resumption of nuclear testing. The production and testing of new types of nuclear weapons would send a crystal clear message to the rest of the world that the United States has no more interest in nuclear arms control unless it means controlling other nations' nuclear programs. We strongly oppose this Administration's vision that would allow the United States to remain an entrenched nuclear power that prioritizes counterproliferation over nonproliferation, the production of weapons of mass destruction above the production of good will through diplomacy.

6/08.02 The Alliance for Nuclear Accountability strongly supports an action alternative for Livermore that seeks an orderly phase-out out its nuclear weapons programs in observance with the Non-Proliferation Treaty and seeks to foster research that is truly beneficial to human health and the environment. This plan, by comparison, is an invitation to disaster, both in the risks it imposes on the Livermore community and in the threat it poses to the global non-proliferation regime.

7/03.01 At a time of record budget deficits, the Livermore plan will be charged on the national credit card for future generations to pay, the same generations that will have to pay for the health care and cleanup in and around the Livermore site.

What a waste!

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Key References to Plutonium Pits in the Lawrence Livermore National Laboratory Site Wide Environmental Impact Statement

Vol. I, 3-3 (p. 93)
Pit Manufacturing and Certification Campaign—This campaign's mission is to regenerate the nuclear weapons complex capability to produce nuclear primaries. In the near term, the campaign will focus mainly on W88 pit manufacturing and certification, while planning for a modern pit facility that is capable of reestablishing and maintaining sufficient levels of production to support requirements for the safety, reliability, and performance of all forecast U.S. requirements for nuclear weapons.

Vol. I, 3-9 (p. 99)
The Proposed Action would increase the plutonium materialat-risk limit from 20 to 60 kilograms of fuel-grade equivalent plutonium in each of two rooms of the Plutonium Facility. This increase is needed to meet future Stockpile Stewardship Programs such as the ITP and the casting of plutonium parts. These activities support campaigns for advanced radiography, pit manufacturing, and certification programs.

Vol. I, 3-14 (p.104)
LLNL fabricates engineering demonstration units to demonstrate the acceptability of different nuclear weapons pit technologies for several weapons systems in the U.S. stockpile. Engineering demonstration units are used to recapture the technology needed to manufacture pits of various types and to develop and demonstrate pit fabrication processes. Under the Reduced Operation Alternative, NNSA proposes to only fabricate engineering demonstration units for half of the pits under the No Action Alternative in the U.S. stockpile.

Vol. II, Appendix A-75 (p. 110)
Some examples of near-term programmatic enhancements include weapon-type welding and nonnuclear development work, which includes installing a new laser welding system in an existing laboratory; developing and demonstrating engineering demonstration units for different weapon types; and demonstrating a modular system for the modern pit facility foundry, the Livermore Casting and Shaping Technology System, which includes installing a set of modular gloveboxes in an existing laboratory, all tied together with an enclosed transport system designed to minimize worker exposure and reduce potential environmental, health, and safety impacts.

Vol. II, Appendix A-118 (p.152)
NNSA continues to rely on LLNL to meet its Stockpile Stewardship Program mission objectives. These objectives include campaigns relating to pit manufacturing and certification, advanced radiography, dynamic materials testing, materials shelf life experiments, and enhanced surveillance research. These NNSA-assigned campaigns and programs require continued and increasing use of plutonium. NNSA is working on a long-term solution for disposal of plutonium, but no pathway for LLNL to dispose of excess plutonium currently exists, requiring an increase in the plutonium administrative limits. Therefore, NNSA would increase the administrative limit for fuel-grade equivalent plutonium to 1,500 kilograms [3,306 pounds] from the existing 700 kilograms [1,543 pounds].

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May 21, 2004

Mr. Thomas Grim, L-293
U.S. Department of Energy,
National Nuclear Security Administration Livermore Site Office,
SWEIS Document Manager
7000 East Avenue
Livermore, CA 94550-9234

Dear Mr. Grim:

1/04.01 I oppose the proposed expansion of new nuclear weapons activity at Lawrence Livermore National Labs (LLNL). The specific technical inadequacies of the Site Wide Environmental Impact Statement (SWEIS) are identified and discussed at length. In addition, to the technical inadequacies there are legal and moral reasons to revise these plans.

2/01.01 The Purpose and Need statement in the SWEIS relies heavily upon the US Nuclear Posture Review, which calls for an aggressive modernization and manufacturing base within the US nuclear weapons complex. This stands in stark contrast to the binding legal mandate to comply with our treaty obligations under the Non-Proliferation Treaty (NPT),

"...to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament and on a Treaty on general and complete disarmament under strict and effective international control." (Article VI of the NPT)

In addition, this plan is in direct violation of the advisory opinion of the World court which affirms among other things the obligation to comply with Article VI of the NPT. To continue to pursue the development of new nuclear weapons technologies and capacities renders us, by our own definition, applied to others, a rogue state. It is time to say NO; no to the entire nuclear weapons complex and especially the role of the LLNL within that complex. Instead the alternatives analysis should be revised to consider LLNL's important role in civilian science.

3/07.01

2/01.01 cont. I join my colleagues expression of deep concern with the health and environmental risks posed by the expanded nuclear weapons mission for the Lawrence Livermore National Laboratory (LLNL) into the indefinite future. We appreciate your focused attention to this matter.

4/31.04 Below, is outlined a number of specific concerns that, taken cumulatively, lead to the conclusion that the Site Wide Environmental Impact Statement (SWEIS) for the continuing operation of LLNL is so deficient in information and analysis that it must be fixed and

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4/31.04 cont. re-circulated in draft form. This would allow the community, the regulators, and the legislators to have the opportunity to evaluate the new information that is requested in these comments. The specific concerns are:

5/08.02 1. The same day of the public hearings for the SWEIS, April 27, 2004, the Congressional Subcommittee on National Security, Emerging Threats, and International Relations for the Committee on Government Reform held a hearing on the security of nuclear materials. The hearing highlighted potentially insurmountable problems with plutonium and highly enriched uranium at certain Department of Energy (DOE) sites, with a focus on the vulnerability of nuclear materials storage at LLNL. On May 7, 2004, Energy Secretary Spencer Abraham delivered a speech on the deficiencies in the security of nuclear materials at LLNL and other DOE sites. The Energy Secretary made a commitment to consider removing the special nuclear materials at LLNL by 2005. This recent acknowledgement by the DOE that security at LLNL is questionable makes it imperative that the SWEIS evaluate an alternative that would remove all special nuclear materials from LLNL. These acknowledgements make this not only a reasonable option, but one that should be evaluated because it is a foreseeable outcome within the next decade at LLNL.

2. Instead of reducing the amount of special nuclear materials on-site at LLNL, this plan proposes to more than double the limit for plutonium at Livermore Lab from 1,540 pounds to 3,300 pounds. Additionally, under the Proposed Action, the administrative limit for highly enriched uranium in Building 239 would increase from 55 pounds to 110 pounds.

Seven million people live in surrounding areas, and residences are built right up to the fence. Plutonium is difficult to store safely because, in certain forms, it can spontaneously ignite and burn. Moreover, it poses a criticality risk when significant quantities are stored in close proximity. The amount of plutonium proposed for LLNL is sufficient to make more than 300 nuclear bombs. Because of the health risks, the proliferation dangers, storage hazards, and very serious security concerns, we believe it is irresponsible to store plutonium, highly enriched uranium and tritium at LLNL. We are calling upon the DOE to de-inventory the plutonium, highly enriched uranium and tritium stocks at LLNL rather than to increase them.

6/34.01 7/33.01, 25.01 3. The SWEIS proposes to increase the at-risk limits for tritium ten fold, from just over 3 grams to 30 grams. The SWEIS proposes to increase the at-risk limit for plutonium from 44 pounds to 132 pounds. We believe it is unsafe to increase the amount of tritium and plutonium that can be "in process" in one room at one time. LLNL has a history of criticality violations with plutonium and releases of both tritium and plutonium,

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6/34.01 7/33.01, 25.01 cont. making it evident that these amounts should be decreased, rather than increased.

8/27.01 4. This plan will revive a project that was canceled more than 10 years ago because it was dangerous and unnecessary. The project was called Plutonium - Atomic Vapor Laser Isotope Separation (AVLIS). Now it is called the "Integrated Technology Project"(ITP) and the "Advanced Materials Program"(AMP). This is a scheme to heat and vaporize plutonium and then shoot multiple laser beams through the vapor to separate out plutonium isotopes. The ITP / AMP is a health risk and a nuclear proliferation nightmare. We believe the ITP and AMP work should be cancelled as the Plutonium AVLIS was cancelled in 1990 - this time permanently.

9/37.01 5. This plan makes Livermore Lab the place to test new manufacturing technologies for producing plutonium pits for nuclear weapons. A pit is the softball-sized piece of plutonium that sits inside a modern nuclear weapon and triggers its thermonuclear explosion. DOE says these new technologies will then be used in a new bomb factory, called the Modern Pit Facility (MPF). Public and Congressional opposition to the MPF has caused its delay this year. The Livermore Lab plutonium pit program goes full-speed ahead in the wrong direction. It will enable the MPF and production of 150 - 450 plutonium bomb cores annually, with the ability to run double shifts and produce 900 cores per year. This production capability would approximate the combined nuclear arsenals of France and China - each year. We call upon the DOE to halt all work on plutonium pit production technologies at Livermore Lab. We believe it is premature for the DOE to spend taxpayer dollars on this technology and the prudent and reasonable outcome is to delay or cancel this project.

10/26.01 11/26.03 6. This plan will add plutonium, highly-enriched uranium and large quantities of lithium hydride to experiments in the National Ignition Facility mega-laser when it is completed at Livermore Lab. Using these materials in the NIF will increase its usefulness for nuclear weapons development, including for the design of new types of nuclear weapons.

It will also make the NIF more hazardous to workers and the environment.

This is not only dangerous to people's health and safety, and a proliferation risk, but it is sure to result in an inordinate cost to the taxpayer. No cost estimate associated with this proposal has been released to date. We ask the DOE to cancel these dangerous, polluting, proliferation-provocative and unnecessary new experiments proposed for the NIF.

12/26.04 7. The SWEIS reveals plans to manufacture tritium targets at LLNL. The tritium-filled targets are the radioactive fuel pellets that the NIF's

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12/26.04 cont. 192 laser beams will "shoot" in an attempt to create a thermonuclear explosion. Producing the targets will increase the amount of tritium that is used in any one room at Livermore Lab from the current limit of just over 3 grams to 30 grams - nearly 10-fold more. In the mid-1990's, LLNL stated that target fabrication was to occur off-site because of LLNL's proximity to large populations. Livermore Lab has a history of tritium accidents, spills and releases. The NIF will increase the amount of airborne radioactivity emanating from LLNL. We call on DOE to cancel plans to manufacture tritium targets for NIF at Livermore Lab. Further, we urge cancellation of the NIF megalaser. Cancellation of NIF is a reasonable alternative that should be fully analyzed in the SWEIS.

13/39.01 8. This plan also calls for Livermore Lab to develop diagnostics to "enhance" the nation's readiness to conduct full-scale underground nuclear tests. This is a dangerous step back to the days of unrestrained nuclear testing. All work at LLNL to reduce the time it takes to conduct a full-scale underground nuclear test should be terminated immediately.

14/35.01 9. This plan mixes bugs and bombs at Livermore. It calls for collocating an advanced bio-warfare agent facility (BSL-3) with nuclear weapons activities in a classified area at Livermore Lab. The plan proposes genetic modification and aerosolization (spraying) with live anthrax, plague and other deadly pathogens. This could weaken the international biological weapons treaty -- and it poses a risk to workers, the public and the environment here in the Bay Area. The draft SWEIS does not adequately describe these programs, or the unique security, health and environmental hazards they present. Construction should be halted on the portable BSL-3 facility. All plans to conduct advanced bio-warfare agent (BSL-3) research on site at LLNL should be terminated.

15/14.01 10. There are 108 buildings identified at LLNL as having potential seismic deficiencies relative to current codes. The SWEIS should include a complete list of these buildings and an accounting of the ones that house or may house hazardous, radiological and biological research materials. LLNL is located within 1 kilometer of two significant earthquake faults, including the Las Positas Fault Zone less than 200 feet from the LLNL boundary. How can we mitigate harm done from an earthquake that damages these buildings before they are brought up to code? We urge the Livermore Lab to stop any work with hazardous, radioactive or biological substances that may be occurring in any building that does not comply with federal standards.

16/22.01 11. A contractor will be paid to package and ship more than 1,000 drums of transuranic and mixed transuranic waste to the WIPP dump in New Mexico, yet the SWEIS says this is exempt from environmental review. This work in its entirety must be included in the review.

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17/20.05 12. The DOE does not acknowledge in the SWEIS that the double-walled shipping containers described in the document may be replaced by less health - protective single-lined containers. We believe that no waste should be shipped in single-walled containers and the SWEIS should provide a guarantee to that effect.

Sincerely,

Sandra Schwartz
Peace Education Coordinator
American Friends Service Committee, PMR

Anderson, Carl
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DOE/EIS-0348
DOE/EIS-0236-S3
Draft Site-wide Environmental Impact Statement
for Continued Operation of Lawrence Livermore National Laboratory and
Supplemental Stockpile Stewardship and Management Programmatic
Environmental Impact Statement
February 2004

Comments prepared by

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April 27, 2004

PREFACE

These comments were prepared before going to Livermore. Comments may be modified on-site.

BIOSAFETY LEVEL-3 (BSL-3) FACILITY

1/01.02 Under international law, offensive uses of biological warfare are completely prohibited. Existing international law has been criticized by many, including the current US administration, who have pointed out that a rigorous, on-demand, transparent inspection regime is necessary to have confidence that such laboratories are not to be used in any way that might facilitate offensive use of biological warfare.

There is an urgent problem with co-locating any advanced biosafety facility at the Livermore site. A BioSafety Level-3 (BSL-3) Facility is proposed. ~~However,~~ As stated on page S-1:

"The primary purpose of continuing operation of LLNL is to provide support for the National Nuclear Security Administration's (NNSA's) nuclear weapons stockpile stewardship missions."

2/02.01 That is, weapons of mass destruction. Furthermore, LLNL is deeply involved in "offensive strike systems, nuclear" (page S-2); and ever since 1945, offensive

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2/02.01 cont. nuclear strike systems have been fundamentally conceived as a means of escalation of non-WMD war to nuclear war. These fundamental elements of LLNL's primary mission cannot be sustained without a rigorous program of security and confidentiality (opaqueness).

3/35.01, 01.02 It is unlikely, in my opinion, that LLNL will conduct research in offensive uses of biological warfare. However, given the laboratory's record in offensive uses of weapons of mass destruction other than biological, and given the security requirements of a facility whose "primary purpose" is WMDs, I don't see how any objective observer can have full confidence in any inspection regime for anything like a BSL-3 Facility, if it is located at a site with the necessary opaqueness of LLNL. People: Opaqueness and transparency are **antonyms**.

So a BSL-3 Facility at Livermore will not be understood as certainly out of the offensive WMD business. This lack of confidence will significantly undermine the international norm against biological warfare. The environmental consequences of biological war, caused in significant part by location of the BSL-3 Facility at the Livermore site, must therefore be part of a realistic Site-wide Environmental Impact Statement.

PLUTONIUM AVLIS

(Atomic vapor laser isotope separation; page S-iv has typographic error)

4/27.01 Weapons-grade plutonium is not in short supply. Some years back, the National Academy of Sciences did a whole study on what to do with the *surplus* of Pu-239. Its decay is so slow as to be truly negligible from a supply standpoint. I see no reasonable reason for production of weapons-grade plutonium. Furthermore, as demonstrated at Rocky Flats, plutonium vapors are notoriously toxic and difficult to clean up.

Perhaps there are hopes that with Pu of even higher isotopic purity than currently stockpiled, nuclear weapons might be designed to give more hope for victory through nuclear escalation. Those hopes are utterly vain. As Ronald Reagan once said, "A nuclear war can never be won and must never be fought." (As McGeorge Bundy pointed out, perhaps he didn't mean what he said. This fact doesn't change the truth of what Reagan said on that occasion.)

Given these facts, I see no reason whatsoever for the acceptability of Pu-AVLIS.

In scoping of this SWEIS, AVLIS was not originally mentioned. Someone in DOE thought that such an idea could be hidden from view. Perhaps they realized, at some level, that an idea as fundamentally stupid as Pu-AVLIS would not withstand public scrutiny.

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Comments of May 27, 2004 (supplementary to comments of April 27, 2004) on:

DOE/EIS-0348
DOE/EIS-0236-S3
Draft Site-wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement
February 2004

I wish to follow up on my comments (written and oral) of April 27.

1. CRITICALITY AT THE NATIONAL IGNITION FACILITY

The NNSA proposes to use fissile isotopes in the National Ignition Facility. I am quite concerned about criticality there, under conditions of pressure that may occur during NIF operations.

1/26.03 One sense of the idea of criticality is at near-ordinary pressures, which do not greatly compress solids. As examples, in storage and production of the spherical shells at the center of nuclear explosives, and in the production and purification of fissile materials, there are standard procedures to avoid criticality and the intense release of radioactivity associated with it. Livermore Lab has a mediocre record in this regard. It has been decades, I think, since criticality actually occurred at the Livermore site; however, violations of vital safeguards have occurred in recent years at Livermore, and are a fairly serious ongoing concern.

Another sense of criticality is under the pressures produced by chemical explosives, probably augmented by neutron reflectors and tampers. In this sense, criticality is approached at the Nevada Test Site; I find this objectionable.

But my main point here is a different one. The National Ignition Facility produces implosion pressures of enormous intensity, far beyond what is produced by chemical explosives. The NNSA proposes to put fissile isotopes under these pressures, in which the nuclei might be much more densely packed than at near-atmospheric pressures. Will, or will not, these pressures produce build-ups of neutron flux and rates of fission

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1/26.03 cont. (criticality)? If there is any possibility at all that criticality may occur in the NIF, does Appendix M fully consider the consequences? It would not suffice merely to state that the total energy released by the fissions would be inconsequential. The consideration must include all aspects: The amount of fissioning (whether or not intended), radiation dosing to workers, releases of gaseous fission products, radioactive waste, the political effects of establishing criticality as acceptable behavior by governments, and any other consequences that might occur.

2. MINOR CORRECTION OF QUOTATION

On April 27, I quoted Ronald Reagan as follows: "A nuclear war can never be won and must never be fought." This contains a minor error. A check of the quotation indicates that Reagan's words were: "A nuclear war cannot be won and must never be fought." (April 17, 1982) The two wordings have the same meaning. Even though Reagan "may not have meant exactly what these words say" (McGeorge Bundy, being diplomatic in "'No First Use' Needs Careful Study," Bulletin of the Atomic Scientists, v. 38, no. 6, pp. 6-8, June/July 1982), the sense of the quotation is still absolutely correct. I continue to suspect that NNSA's failure to grasp this point underlies Pu-AVLIS. 2/27.01