

**DEPARTMENT OF ENERGY**

**National Nuclear Security Administration  
Record of Decision: Final Site-wide Environmental Impact Statement for Continued  
Operation of Lawrence Livermore National Laboratory and Supplemental  
Stockpile Stewardship and Management Programmatic Environmental Impact  
Statement**

**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 (ROD) regarding its plan for continued operation of the Lawrence Livermore National Laboratory located approximately 40 miles east of San Francisco in Alameda and San Joaquin Counties; and for use of plutonium, other fissile materials, fissionable materials and lithium hydride in experiments to be conducted at the National Ignition Facility (NIF). In making its decisions NNSA considered the “Final Site-wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory (DOE/EIS-0348) and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement (DOE/EIS-0236-S3) (LLNL SW/SPEIS)” and other information, including programmatic mission needs and cost. NNSA has decided to implement the Proposed Action Alternative as described in the LLNL SW/SPEIS with the exception of the Energetic Materials Processing Center Replacement and High Explosives Development Center Project. This alternative includes the continued operation of LLNL; an increase in administrative and material-at-risk limits for plutonium and tritium; and the use of plutonium, other fissile materials, fissionable materials, and lithium hydride in experiments conducted at the NIF. NNSA’s implementation of the individual components of the Proposed Action Alternative during the next decade is subject to its continuing assessment of its mission needs and of LLNL’s role in meeting those needs.

**FOR FURTHER INFORMATION CONTACT:** For further information on the LLNL SW/SPEIS or the ROD, or to receive a copy of the LLNL SW/SPEIS or ROD, contact: Thomas Grim, Document Manager, U.S. Department of Energy, Livermore Site Office NNSA, 7000 East Avenue, Livermore, CA 94550-9234, (925) 422-0704.

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**

NNSA prepared this ROD pursuant to the regulations of the Council on Environmental Quality (CEQ) for implementing NEPA (40 CFR Parts 1500–1508) and DOE’s NEPA Implementing Procedures (10 CFR Part 1021). In making its decisions NNSA considered the Final LLNL SW/SPEIS dated March 2005 and other information, including programmatic mission needs and cost.

LLNL consists of two sites: an 821-acre site in Livermore, California (Livermore Site), and a 7,000-acre experimental test site near Tracy, California (Site 300). Most LLNL operations are located at the Livermore Site, which is situated about 40 miles east of San Francisco in southeastern Alameda County. Site 300 is primarily a test site for explosives and non-nuclear weapons components; it is located about 15 miles southeast of Livermore in the hills of the Diablo Range. Most of Site 300 is located in San Joaquin County; the western edge of the site is in Alameda County.

The continued operation of LLNL is critical to NNSA’s Stockpile Stewardship Program and to preventing the spread and use of nuclear weapons worldwide. LLNL maintains core competencies in activities associated with research, development, design, and surveillance of nuclear weapons, and with the assessment and certification of their safety and reliability. In response to the end of the Cold War and changes in the world’s political regimes, the emphasis of the United States’ nuclear weapons program has shifted from developing and producing new weapons designs to dismantling obsolete weapons and sustaining a smaller weapons stockpile. Programs at LLNL support a number of DOE and NNSA missions. These missions include nuclear weapons stewardship, nonproliferation, preventing the spread of weapons of mass destruction, energy security and meeting long-term energy needs, environmental assessment and management, bioscience, fundamental sciences, and developing applications for new technology. LLNL also supports other Federal agencies such as the Department of Defense, the Nuclear Regulatory Commission (NRC), the Environmental Protection Agency (EPA), and the Department of Homeland Security.

The LLNL SW/SPEIS evaluates the use of plutonium, other fissile materials, fissionable materials, and lithium hydride in experiments at the NIF and updates the analysis of the environmental impacts of operation of the NIF as described in the Final Programmatic Environmental Impact Statement for Stockpile Stewardship and Management (SSM PEIS) (DOE/EIS-0236).

NNSA expects to continue its support of new projects and facilities at LLNL subject to its continuing assessment of its mission and LLNL’s role in that mission. Any new projects or facilities would be considered in programmatic or project-specific NEPA reviews as appropriate. Subsequent NEPA reviews for projects or activities at LLNL would make reference to, and be based on, the LLNL SW/SPEIS.

## **Alternatives Considered**

The alternatives evaluated in the Final LLNL SW/SPEIS represent a range of operation from minimum levels that maintain core capabilities (Reduced Operation Alternative) to the highest reasonable activity levels that could be supported by current facilities, as well as the expansion and construction of new facilities for specifically identified future actions (Proposed Action). The No Action Alternative would continue operation of current LLNL programs in support of assigned missions, and includes approved interim actions and facility construction, expansion or modification, and decontamination and decommissioning for which NEPA analysis and documentation already exist. The Proposed Action includes operations evaluated in the No Action Alternative as well as construction of new facilities and expanded operations in support of future NNSA mission requirements. The Reduced Operation Alternative represents a 30 percent reduction of the Stockpile Stewardship Program as analyzed in the No Action Alternative. The Reduced Operation Alternative maintains full operational readiness for NNSA facilities and operations, but does not include the level of operation needed to perform tasks assigned to the Stockpile Stewardship Program at LLNL. NNSA identified the Proposed Action as the preferred alternative in the Final LLNL SW/SPEIS. A discussion of the alternatives is provided in the following sections.

### *No Action Alternative*

The No Action Alternative was analyzed as required by CEQ's NEPA implementing regulations (40 CFR Parts 1500–1508) to provide a baseline against which the impacts of the Proposed Action and Reduced Operation Alternatives could be compared. Under the No Action Alternative, LLNL would continue to support major DOE and NNSA programs such as defense programs, environmental management, nuclear nonproliferation, and energy research. The No Action Alternative represents the level of operations that would occur in the absence of new decisions regarding activities at LLNL. The changes in facilities and operations, including those that are currently under construction or planned in the near future, are completion of NIF; the BioSafety Level 3 Facility; the Terascale Simulation Facility; the Container Security Testing Facility; facility modifications, upgrades and decontamination and decommissioning; and full implementation of Stockpile Stewardship Programs in the LLNL Plutonium and Tritium facilities.

As noted in the Final LLNL SW/SPEIS, NNSA decided to remove the Advanced Materials Program from this and other alternatives in response to public comments and a reassessment of program needs.

### *Proposed Action Alternative*

The Proposed Action would result in an increase in LLNL operations to support reasonably foreseeable mission requirements. This includes the expansion or modification of current facilities and construction of new facilities, as well as those projects, activities, and facilities described in the No Action Alternative. The proposed changes in facilities and operations are:

- (1) Conduct experiments at the NIF using plutonium, other fissile materials (such as uranium 235), fissionable materials (such as thorium 232), and lithium hydride.
- (2) Construct and operate a neutron spectrometer as part of the NIF core facility diagnostics capability.
- (3) Increase the administrative limit for plutonium to 1,400 kilograms from the existing 700 kilograms. The limit for enriched uranium would remain unchanged at 500 kilograms.
- (4) Increase the plutonium material-at-risk limit from 20 to 40 kilograms of fuel-grade equivalent plutonium in each of two rooms of the Plutonium Facility.
- (5) Increase the Tritium Facility administrative limit for tritium from 30 to 35 grams and the material-at-risk at a single workstation from 3.5 to 30 grams.
- (6) Upgrade existing materials fabrication, characterization, and testing facilities supporting NNSA's national security mission as part of the Materials Science Modernization Project.
- (7) Perform research and development activities on a variety of biodetector technologies in the Physics Facility and the Microfabrication Laboratory at the Livermore Site as part of the Chemical and Biological Nonproliferation Program Expansion.
- (8) Install and operate a petawatt laser prototype in the Inertial Confinement Fusion Laser Facility.
- (9) Physically consolidate security services to improve functionality, efficiency, and effectiveness of security operations as part of the Consolidated Security Facility.
- (10) Change waste management activities to accommodate increased waste generation and improve overall operational methods.
- (11) Accept 5 drums of mixed transuranic waste from the Lawrence Berkeley National Laboratory.
- (12) Upgrade LLNL facilities to meet current seismic and utilities standards, and decontaminate and decommission other facilities at LLNL.
- (13) Increase the highly enriched uranium administrative limit for the Radiography Facility from 25 to 50 kilograms to support Stockpile Stewardship Program activities.

As noted in the Final SW/SPEIS, NNSA decided to remove the Integrated Technology Program from this alternative in response to public comments and a reassessment of program need.

#### *Reduced Operation Alternative*

The Reduced Operation Alternative includes reductions in LLNL operations supporting the NNSA Stockpile Stewardship Program. This alternative represents a 30 percent reduction in operations for the Stockpile Stewardship Program as compared to the No Action Alternative. Under this alternative, NNSA would maintain full operational readiness of NNSA facilities and operations, but would not conduct operations at the level needed to fulfill all of the Stockpile Stewardship Program tasks assigned to LLNL. However, LLNL operations would not be reduced beyond those required to maintain safety and security activities, such as managing nuclear materials, explosives, and other hazardous materials safely.

This alternative considers and analyzes reasonable proposals for the reduction or cessation of specific operations to reduce potential adverse impacts. For this LLNL SW/SPEIS, NNSA did not analyze in detail the complete closure, decontamination, and decommissioning of the Livermore Site or Site 300 because the continued operation of these sites is critical to NNSA's Stockpile Stewardship Program and to prevention of the spread and use of nuclear weapons. Reductions include a decrease in the annual yield from NIF ignition experiments, fabrication of 50 percent fewer engineering demonstration units during pit surveillance activities, and fabrication of nearly 50 percent fewer subcritical assemblies. Other reductions include operation of the Terascale Simulation Facility computer at 60 percent capacity and conducting fewer experiments using tritium at Site 300

### **Preferred Alternative**

The preferred alternative is the alternative that NNSA believes would fulfill its statutory missions and responsibilities giving consideration to economic, budget, environmental, schedule, technical and other factors. In the Final LLNL SW/SPEIS, NNSA identified the Proposed Action as the preferred alternative for continued operations of LLNL.

### **Environmentally Preferable Alternative**

After considering impacts to each resource area by alternative, NNSA has identified the Reduced Operation Alternative as the environmentally preferable alternative, which is the alternative with the lowest level of operations. The Reduced Operations Alternative has lower socioeconomic impacts because of the reduced number of workers, reduced hazardous and radioactive waste, and reduced radiological exposure to workers and the public.

### **Environmental Impacts of the Alternatives**

The following section compares the potential impacts to environmental resources associated with the continued operation of LLNL under the No Action Alternative, the Proposed Action, and the Reduced Operation Alternative. The resource areas discussed below are listed in two sections: those with potentially major environmental impacts and those with minor impacts.

#### *Resource Areas with Major Environmental Impacts*

The major impacts occur in three areas; materials and waste management, human health and safety, and radiological accidents.

#### *Materials and Waste Management*

Waste generation for both routine and nonroutine wastes would be higher under the Proposed Action than under the No Action Alternative or Reduced Operation Alternative. Differences in the amount of waste generated include routine low-level waste, which would increase from 170 cubic meters per year under current (2002) conditions to 200

cubic meters per year under the No Action Alternative. It would increase to 330 cubic meters per year under the Proposed Action Alternative, primarily due to differences in the operation of the NIF, and increase slightly to 180 cubic meters per year under the Reduced Operation Alternative. Routine transuranic waste would increase from 35 cubic meters per year to 50 cubic meters per year under the No Action Alternative and the Proposed Action, and increase to 45 cubic meters per year under the Reduced Operation Alternative.

Differences in nonroutine waste generation cover all major waste categories across the alternatives, with the highest waste generation under the Proposed Action and lowest under the Reduced Operation Alternative. Levels of waste generation are within the capacities for treatment, transportation, or storage either onsite or at waste repositories such as the Waste Isolation Pilot Plant (WIPP). In addition, LLNL is implementing cost effective pollution prevention techniques to reduce waste generation.

### *Human Health and Safety*

Under the No Action Alternative, the occupational (involved) worker ionizing radiation dose would increase from 28 person-rem per year to 89 person-rem per year due to the increase in operations. These operations include increases in NIF and stockpile stewardship activities and the packaging of excess plutonium in the Plutonium Facility. The dose under the Proposed Action Alternative would increase to 93 person-rem per year, mostly from the use of proposed materials in experiments at the NIF. Under the Reduced Operation Alternative, worker dose would increase to 38 person-rem per year. Latent cancer fatalities (LCFs) calculated from these exposures would be  $5.3 \times 10^{-2}$ ,  $5.6 \times 10^{-2}$ , and  $2.3 \times 10^{-2}$  per year of exposure under the No Action Alternative, Proposed Action, and Reduced Operation Alternative, respectively. Worker exposure will be maintained as low as reasonably achievable.

The ionizing radiation dose to the general public under all three alternatives would increase from 0.5 person-rem per year to 1.8 person-rem per year at the Livermore Site, and would increase from 2.5 person-rem per year to 9.8 person-rem per year at Site 300. The corresponding LCFs for all three alternatives would be  $1.1 \times 10^{-3}$  at the Livermore site, and  $5.9 \times 10^{-3}$  at Site 300. The projected dose at both sites is within the ranges of doses observed within the past 5 years.

The maximally exposed individual (MEI) dose at the Livermore Site from ionizing radiation would increase from 0.023 millirem per year (which yields  $1.4 \times 10^{-8}$  LCFs) to 0.30 millirem per year (which yields  $1.8 \times 10^{-7}$  LCFs) under the No Action Alternative. The MEI dose for the Proposed Action and the Reduced Operations Alternatives would be 0.33 millirem per year (which yields  $2.0 \times 10^{-7}$  LCFs) and 0.22 millirem per year (which yields  $1.3 \times 10^{-7}$  LCFs) respectively. The MEI dose at the Site 300 from ionizing radiation would increase from 0.021 millirem per year (which yields  $1.3 \times 10^{-8}$  LCFs), to 0.055 millirem per year (which yields  $3.3 \times 10^{-8}$  LCFs) for the No Action and the Proposed Action Alternatives. The dose under the Reduced Operations Alternative would be 0.054 millirem per year (which yields  $3.3 \times 10^{-8}$  LCFs).

## *Accidents*

The LLNL SW/SPEIS analyzed potential accidents at all major facilities. Potential LCFs in the offsite population for median meteorological conditions were used to identify bounding radiological accidents for nuclear material handling and waste management operations.

In making these decisions announced in this ROD, NNSA considered the accidents analyzed in the Final LLNL SW/SPEIS and reviewed the data and methodology used to identify bounding site accidents. This review found that all bounding site accidents were accurately identified; however, minor discrepancies were found in a few analyses of non-bounding site scenarios. Information concerning these discrepancies is available from Thomas Grim, the NNSA Document Manager for the LLNL SW/SPEIS, at the address and phone number included at the beginning of this ROD. These discrepancies are negligible and the LLNL SW/SPEIS adequately evaluates the potential impacts of the alternatives.

The bounding radiological accident for nuclear material handling under the Proposed Action is a fire involving radioactive material in the Plutonium Facility in which emissions are released without high-efficiency particulate air filtration. Such an accident would result in 0.112 LCFs in the offsite population. The exposure to noninvolved workers would result in 0.372 LCFs from this accident. The calculated annual frequency for this accident is  $3.9 \times 10^{-7}$ , which is less frequent than once in a million years. Under the No Action and the Reduced Operation Alternatives, the bounding accident for nuclear material handling in the Plutonium Facility is a small aircraft crashing into the building, which would result in 0.058 LCFs in the offsite population, and with a probability of  $6.1 \times 10^{-7}$  per year, which is also less than once in a million years.

The bounding radiological accident for waste management operations is a small aircraft crashing into the Radiological and Hazardous Waste Storage Facility, which would result in 1.21 LCFs in the offsite population under the Proposed Action. The exposure to noninvolved workers from such an accident would result in 0.055 LCFs. The estimate of LCFs for the same accident under the No Action and the Reduced Operation Alternatives is 0.397 LCF. The calculated annual frequency of an aircraft crashing into the building with subsequent gasoline pool fire is  $6.1 \times 10^{-7}$ , which is less frequent than once in a million years. The aircraft accident scenario evaluated at the Radiological and Hazardous Waste Storage Facility is very conservative in that it assumes the facility is loaded to its physical limit with containers of transuranic waste, each container holding its maximum allowable curie limit. Therefore, the consequences discussed above are calculated using what would be considered the maximum allowable inventory in the Radiological and Hazardous Waste Storage Facility under the facility's operational procedures. It is unlikely that the facility would ever contain this large of an inventory.

Bounding accident scenarios for chemical, explosive, and biological accidents are the same among all three alternatives and are unlikely to result in fatalities to the general public or workers except for the bounding explosives accident, which could result in 20 worker fatalities.

### *Resource Areas with Minor Environmental Impacts*

The following resource areas have some small environmental impact differences among the alternatives or are of a particular concern to the public based on comments.

#### *Socioeconomic Characteristics and Environmental Justice*

The socioeconomic impacts from continued operations at LLNL would vary under the three alternatives, and would primarily affect Alameda and San Joaquin counties. For the No Action Alternative, LLNL employment would increase by 300 workers to 10,650 at the Livermore Site and increase by 10 workers to 250 at Site 300 compared to the 2002 employment levels. For the Proposed Action, the worker population would increase, over the No Action Alternative, by 500 workers to 11,150 at the Livermore Site and would remain at 250 workers at Site 300. For the Reduced Operation Alternative, worker population would decrease from the No Action Alternative by 880 workers to 9,770 at the Livermore Site and decrease by 20 workers to 230 at Site 300. The number of housing units affected would be proportional to the changes in worker population in both counties.

#### *Community Services*

The only notable impact for community services would be the generation and disposal of nonhazardous solid waste. For the No Action Alternative, it is estimated that 4,600 metric tons per year of nonhazardous solid waste would be generated at the Livermore Site. Under the Proposed Action, the Livermore Site would generate 4,900 metric tons per year of nonhazardous solid waste. Under the Reduced Operation Alternative, nonhazardous solid waste generation at the Livermore Site would be reduced to 4,200 metric tons per year. Nonhazardous waste generation at Site 300 would be 208 metric tons per year under both the No Action and Proposed Action alternatives and reduced to 191 metric tons per year for the Reduced Operation Alternative. The local Altamont Landfill is estimated to have sufficient capacity to receive waste until the year 2038. The current total daily permitted throughput is 11,150 tons per day.

#### *Aesthetics and Scenic Resources*

Changes to the offsite views of the Livermore Site would be similar under all alternatives. At Site 300, the Proposed Action would have little or no impact on aesthetics and scenic resources. The existing character of LLNL would not change at either site under any of the alternatives.

#### *Biological Resources*

NNSA completed a biological assessment (included as Appendix E of the LLNL SW/SPEIS) and has requested formal consultation with the U.S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act. NNSA will implement any new or additional mitigation measures, and will carefully consider implementation of



conservation recommendations contained in the Fish and Wildlife Service's Biological Opinion when it is issued.

The effects of the Proposed Action at the Livermore Site were considered on the California red-legged frog, a federally listed threatened species. The biological assessment concludes that construction related projects, facility maintenance, landscaping, grounds maintenance, herbicide application, and vehicular traffic may affect, but are not likely to adversely affect, this species. The frogs may be adversely affected during the Arroyo Las Positas Maintenance Project; however, the overall Proposed Action would have a near-term positive effect on the frog population and habitat. The demolition of facilities at the Livermore Site would result in a long-term indirect benefit to the California red-legged frog.

Although six federally listed threatened or endangered species occur or potentially occur at Site 300, based on habitat assessments, field studies, and distribution data, the California red-legged frog, Alameda whipsnake, and California tiger salamander were identified in the biological assessment as either having the potential to occur or as occurring at the project areas at Site 300 that would be affected by the Proposed Action. These areas include formerly designated critical habitat for the Alameda whipsnake and proposed critical habitat for the California red-legged frog. Appendix E concludes that the Proposed Action may affect, but is not likely to adversely affect, the California red-legged frog, Alameda whipsnake, and California tiger salamander.

#### *Radiological Air Quality*

There are differences among the alternatives regarding the potential radiological air quality impacts, all of which would be low both in relative and absolute terms. Once the NIF is operating, the MEI would be located due east of the NIF. The MEI doses for the Livermore Site would be 0.1, 0.13, and 0.09 millirem per year under the No Action, Proposed Action, and Reduced Operation Alternative, respectively. These doses are approximately two orders of magnitude below the EPA standard (40 CFR Part 61.92), which requires that the maximally exposed member of the public not receive a dose exceeding 10 millirem per year. The population dose for the Livermore Site would be 1.8 person-rem per year under all three alternatives. At Site 300, the MEI would be west-southwest of Firing Table 851, the only outdoor firing facility that would use tritium. The MEI dose at Site 300 would be 0.055 millirem per year under the No Action Alternative and the Proposed Action, and 0.054 under the Reduced Operation Alternative, which are over two orders of magnitude under the EPA standard. The population dose for Site 300 would be 9.8 person-rem per year under all three alternatives. The potential impacts of these exposures are included in the results discussed in *Human Health and Safety* for each of the alternatives.

#### *Traffic and Transportation*

Traffic at the Livermore Site would be directly affected by changes in worker population under each alternative. Under the No Action Alternative, traffic would increase slightly as a result of the increase in worker population by 300 workers (22,600 total vehicle trips

per day) compared to current (2002) conditions. Traffic volume would increase further under the Proposed Action due to the addition of 500 workers (23,700 total vehicle trips per day). Traffic volume would decrease under the Reduced Operation Alternative due to the loss of 880 workers (as compared to the No Action Alternative) at the Livermore Site (21,000 total vehicle trips per day). At Site 300, the impact to traffic due to changes in the number of workers would be negligible under any of the alternatives. Construction projects would result in temporary increases in commuter traffic and deliveries.

Transportation of radioactive materials offsite would increase under the No Action Alternative and Proposed Action. Under the No Action Alternative, offsite shipments would result in a collective dose of 7.4 person-rem per year. Under the Proposed Action, offsite shipments would result in a collective dose of 9.0 person-rem per year. This dose would decrease under the Reduced Operation Alternative to 1.7 person-rem per year. The potential cancer risk from shipments of radioactive materials from the Livermore Site would be low under all alternatives. The calculated potential LCFs under the No Action and the Proposed Action Alternatives would be  $4 \times 10^{-3}$  and  $5 \times 10^{-3}$ , respectively. Under the Reduced Operation Alternative, the LCF would fall to  $1 \times 10^{-3}$ . Under the Proposed Action, the amount of explosive materials transported to Site 300 would increase slightly from the No Action Alternative. Under the Reduced Operation Alternative, transportation of these materials would decrease.

#### *Utilities and Energy*

Under the No Action Alternative, the projected peak electrical demand at LLNL would be 82 megawatts and the annual total use would be 446 million kilowatt-hours. In 2004, the State of California projected the statewide peak demand to be 53,464 megawatts and projected a growth in peak demand of about 2.4 percent per year. LLNL's projected peak demand in 2004 was 0.1 percent of total demand in California. There would be virtually no change in the peak demand under the Proposed Action and the Reduced Operation Alternative. Annual electric use among the No Action, Proposed Action, and Reduced Operation Alternatives would be 446, 442, and 371 million kilowatt-hours, respectively. The decrease in electricity usage from the No Action Alternative to the Proposed Action is due to a cumulative reduction of LLNL floor space under the Proposed Action. For the same reason the Livermore Site would experience a decrease in water consumption and sewage discharges under the Proposed Action.

#### *Site Contamination*

Areas of soil and groundwater contamination exist at the Livermore Site and Site 300. These are primarily the result of past waste management practices, some of which took place during the 1940s when the Livermore Site was a naval air station. Although there is no immediate or long-term threat to human health from this contamination, there is localized degradation of groundwater. Remediation systems are currently operating to reduce the concentrations and extent of contamination. Appropriate cleanup measures implemented with the concurrence of regulators would continue regardless of the alternative selected.

Increased site activities under the No Action Alternative or Proposed Action could increase the likelihood of soil contamination with corresponding increases in the potential for accidental releases. However, minimal deposition of contaminants is expected because of spill prevention and control procedures. Under the Reduced Operation Alternative a lower likelihood of soil contamination would be expected.

### **Comments on the Final LLNL SW/SPEIS**

NNSA received three letters concerning the Final LLNL SW/SPEIS after distributing approximately 500 copies of it to Congressional members and committees, the state of California, other Federal agencies, American Indian tribal governments, local governments, nongovernmental organizations, and interested individuals. Tri-Valley CAREs (Communities Against a Radioactive Environment) submitted two letters and the EPA submitted one. The EPA indicated that it was pleased that the issues identified in its review of the Draft LLNL SW/SPEIS had been addressed in the final version of the document.

In an August 3, 2005 letter to NNSA, Tri-Valley CAREs asked why the Final LLNL SW/SPEIS does not contain any of the 36 attachments that Tri-Valley CAREs submitted with its 63-page letter of comments on May 27, 2004. It asserted that its "attachments provided supporting material for many of the substantive comments that were included in our May 27, 2004 Comment Letter", and that the omission of these attachments might violate NEPA. Volume IV of the Final LLNL SW/SPEIS includes all of the 63 pages of substantive comments in Tri-Valley CAREs' Comment Letter, as well as comment summaries, responses, and a detailed cross-reference between comments and summaries. NNSA did not include copies of the 36 attachments because NNSA included the entirety of the 63-page Comment Letter itself, which includes Tri-Valley CAREs' substantive comments. Although not included in the Final LLNL SW/SPEIS, NNSA reviewed the attachments and considered the relevant material in them during its preparation of the Final LLNL SW/SPEIS. The attachments are included in the administrative record for the LLNL SW/SPEIS as part of the comment letter.

A May 31, 2005, letter from Tri-Valley CAREs reiterated its comments on the Draft LLNL SW/SPEIS and provided additional information, including comments on the recent stand-down at the LLNL Plutonium Facility. The comments provided by Tri-Valley CAREs on the Final LLNL SW/SPEIS did not lead NNSA to conclude that it should change any of the analyses of the alternatives. NNSA responded to comments from Tri-Valley CAREs on the Draft LLNL SW/SPEIS in Volume IV, Chapter 3 of the Final LLNL SW/SPEIS. The following is a brief summary of the Tri-Valley CAREs' comments from the May 31, 2005, letter including the stand-down of the Plutonium Facility.

(1) The LLNL SW/SPEIS did not address comments from Tri-Valley CAREs and others that the purpose and need is critical to identifying the range of alternatives. Therefore, the range of alternatives analyzed in the LLNL SW/SPEIS is too narrow. NNSA should have analyzed a broader range of alternatives that included the reduction of nuclear

weapons activities, many of which are duplications of programs at Los Alamos National Laboratory or limit nuclear weapons modernization programs.

Response: The range of reasonable alternatives is provided in Volume I, Chapter 3 of the LLNL SW/SPEIS. As described in Section 3.4, the range of alternatives analyzed in the LLNL SW/SPEIS is reasonable and appropriately responds to the programmatic purpose and need. Additional information is provided in Comment Responses 7.01, 8.01, 8.02 and 8.03. Comment Response 8.01 states that significant reductions or consolidations of the weapons laboratories beyond those analyzed in the Reduced Operations Alternative are unlikely and therefore not reasonable alternatives because they would not allow NNSA to maintain core competencies or to develop new technologies necessary to ensure continued high confidence in a safe and reliable nuclear weapons stockpile.

Alternatives that would cease work involving the use of nuclear materials and the eventual removal of all nuclear materials were considered. However, none of these alternatives would meet Presidential Decision Directives or comply with Congressional guidance, or national security policy, all of which require the continued viability of all three NNSA nuclear weapons laboratories.

(2) Adequate purpose and need were not provided for many program activities at LLNL such as producing tritium targets at the Tritium Facility and developing plutonium production technologies that will be used in a proposed modern pit facility.

Response: The purpose and need are provided in Volume I, Chapter 1 of the LLNL SW/SPEIS for the major programs and projects at LLNL. Chapter 3 provides additional information on specific projects at LLNL that support the Stockpile Stewardship Program (SSP) including the Tritium Facility Modernization Project and support for pit manufacturing. Chapter 3 of Volume IV, Comment Response 37.01, addresses comments on plutonium production technologies for pit manufacturing and Comment Response 34.01 addresses comments on tritium operations. Increased limits on the use of tritium will make it possible to fill targets for high-energy density physics experiments and to provide diagnostic systems for test readiness, which are required to fulfill the requirements of the Enhanced Test Readiness Program.

(3) DOE should not increase the plutonium limit in the Plutonium Facility because the facility is currently in a “stand down” mode due to safety problems.

Response: LLNL initiated a programmatic stand down of operations in the Plutonium Facility in order to resolve issues and findings from a January 6, 2005, report issued by the DOE Office of Independent Oversight and Performance Assurance. NNSA will verify the adequacy of corrective actions taken to resolve the issues prior to any increase of Plutonium Facility operations. Once the Plutonium Facility is fully operational, NNSA and DOE will continue to oversee and inspect its operations to ensure they are performed according to requirements.

To support SSP missions, NNSA has determined that it will need to increase the plutonium administrative limit from 700 kg to 1400 kg for the Plutonium Facility and

increase the plutonium material-at-risk limit from 20 to 40 kilograms of fuel-grade equivalent plutonium in each of two rooms of the Plutonium Facility. Under the Proposed Action, NNSA will review and approve the appropriate documentation and procedures required to implement these new limits.

(4) The increase in the plutonium administrative limits in the Plutonium Facility creates storage, transportation, management, accident, and security concerns that were not adequately analyzed. Rather than analyzing an increase in the administrative limits the LLNL SW/SPEIS should have analyzed the removal of all special nuclear material from LLNL.

Response: Comment Response 33.01 provides information on the purpose and need for increasing the plutonium limits. NNSA continues to rely on LLNL to meet its SSP mission objectives, which require increasing the quantity of plutonium. NNSA continues to work on a solution for disposal of plutonium, but no pathway for LLNL to dispose of excess plutonium currently exists. The increase in plutonium administrative limits is analyzed in Volume I, Chapter 5. The impacts of transportation of radioactive materials, specifically plutonium, are analyzed in Section 5.3.11. Additional specific information on transportation of these materials is provided in Appendix J. Section 5.3.13 analyzes waste generated from plutonium operations and Section 5.3.14 analyzes exposure to workers and the public from these operations. Accidents involving the storage and use of plutonium are analyzed in Section 5.5. The impacts of security concerns are analyzed as part of the accident analysis in Section 5.5. Comment Response 25.01 provides specific responses to many of the question raised concerning accidents involving the use of plutonium at LLNL.

(5) The former Secretary of Energy announced in 2004 that DOE would study removal of special nuclear material from LLNL. The omission of this and other information provided in attachments to the comments on the draft LLNL SW/SPEIS undermines the legal sufficiency of the EIS.

Response: As indicated in Comment Response 08.02, the removal and relocation of nuclear materials to another DOE/NNSA laboratory is not considered a reasonable alternative as it would not respond to the programmatic purpose and need for stockpile stewardship missions at LLNL. Section 3.5 of the LLNL SW/SPEIS explains why this alternative is unreasonable and was eliminated from detailed analysis. NNSA considers the storage and use of this material at LLNL to be safe and secure.

The Secretary of Energy did agree to conduct a comprehensive review of the nuclear weapons complex during testimony on March 11, 2004, to the House Appropriations Subcommittee on Energy and Water. The Nuclear Weapons Complex Infrastructure Task Force was asked to conduct this review and submitted its draft report titled *Recommendations for the Nuclear Weapons Complex of the Future* on July 13, 2005, to the Secretary of Energy Advisory Board (SEAB). The draft final report is currently undergoing public review. The full SEAB will meet in the fall of 2005 to review the

comments and the draft final report; it will thereafter submit its recommendations, which may differ from those of the task force, to the Secretary of Energy.

(6) Accident analysis for the increase in the use and storage of plutonium is not given an adequate level of study. The accident scenarios did not evaluate the impacts of a commercial airliner hitting the laboratory; the document only considered impacts of planes originating from the Livermore Municipal Airport. The accident analysis did not use the correct leak path factor or consider other concerns for releases during an accident in the Plutonium Facility. Additionally, the unfiltered fire scenario does not address concerns such as alarms, security doors, emergency equipment and supply pressure for water.

Response: A discussion of Plutonium Facility accidents is provided in Chapter 5, Section 5.5 and in Appendix D, Section D.2.3. In addition, Comment Response 25.08 provides information on potential aircraft crash scenarios for LLNL facilities for all types of aircraft, including commercial aircraft. The methodology in DOE Standard 3014 “Accident Analysis for Aircraft Crash into Hazardous Facilities” was used for this evaluation. The calculated frequency of a commercial aircraft crashing into the LLNL Plutonium Facility is  $1 \times 10^{-8}$  per year. NNSA does not consider this accident to be reasonably foreseeable and thus it is not evaluated in detail in the LLNL SW/SPEIS.

As indicated in Comment Response 25.07, the values used in the accident analysis, such as the leak path factors, are based on careful consideration of the material present in the facility, potential initiating events and their probabilities, and potential pathways through which material could escape to the environment. The unfiltered fire scenario assumed that all of the radioactive material in the room was involved in the fire and the material was released using a leak path factor of 0.05 for this accident. Alarms, doors, emergency equipment and water pressure were not considered in the unfiltered fire scenario because the analysis assumes that the fire is of sufficient magnitude that all the radioactive material is engulfed in the fire, and that the fire burns long enough to release the material from storage containers to the glovebox, room, and the environment. Therefore, there are no reasonably foreseeable accidents with greater consequences.

(7) It is improper for NNSA to not fully incorporate the City of Livermore’s General Plan into the LLNL SW/SPEIS. The city’s plan rezones the land around LLNL as high density residential and this information was not considered in all sections of the LLNL SW/SPEIS. As a result DOE is not in full compliance with the NEPA directive to include written and actively pursued plans in an EIS. Additionally, the LLNL SW/SPEIS states that LLNL and much of the surrounding area is designated for industrial uses which is in direct conflict with figures in the other sections of the LLNL SW/SPEIS.

Response: Chapter 4, Section 4.2 of the LLNL SW/SPEIS, was changed to reflect the City of Livermore’s General Plan. The city also submitted comments on the Draft LLNL SW/SPEIS. NNSA evaluated these comments and made appropriate changes in the Final LLNL SW/SPEIS as indicated in Comment Response 9.02. Based on comments from the City of Livermore, which reflect its current planning, Figures 4.2.1.1-1 and 4.2.2.1-1 were revised to indicate residential use consistent with the city’s General Plan. The City

of Livermore comments are addressed in Comment Responses 8.03, 9.01, 9.02, 9.03, 12.01, 17.02, 17.03, 20.03, 26.03, and 33.01.

(8) The radiation dose to involved workers does not account for releases due to minor accidents, decaying facilities, and workers encountering unexpected radiation sources in areas that were not properly recorded.

Response: Chapter 5, Section 5.3.14, analyzes the radiation dose to workers for the Proposed Action. Comment Response 23.05 provides information on the health impacts to workers and the public. Health impact analysis is performed using a broad range of available information and models developed by regulatory agencies and data drawn from experience. In the case of existing operations, worker doses are based on exposure records, which take into account all exposure pathways. In the case of new operations, worker doses are based on models that simulate exposure for the operations to be performed. Exposure from all accidents at LLNL is taken into consideration when developing worker exposure estimates. These exposures are bounded by the accident analysis provided in Chapter 5, Section 5.5 and Appendix D. Information on past accidents is also provided in Appendix C, Section 3.2.

(9) Information was not provided in the LLNL SW/SPEIS about what activities or programs are contained in facilities that are identified to have unacceptable seismic risks. Information was not provided to indicate what facilities were undergoing renovation or what facilities would remain operational after an earthquake. Updated information on California seismic risk provided by Tri-Valley CAREs was not considered.

Response: Chapter 4, Section 4.8, and Appendix H provide detailed analysis of the seismic faults in the Livermore Valley and their potential effect on LLNL facilities and operations. Comment Response 14.03 explains that all facilities at LLNL have been evaluated against modern seismic criteria, current and planned use, and building population and inventory. These evaluations allowed for ranking of the facilities by the amount of retrofit that could be required. This evaluation is used as part of the overall planning for LLNL to determine if buildings should be replaced, their use changed, or their structural integrity improved. Based on comments received, updated information was added in Appendix H on the seismic upgrades of Buildings 141, 151, 298, 321, and 511. It is not possible to determine what specific facilities would remain operational after an earthquake. This would depend on a wide range of variables at the time of the earthquake. A seismic event at LLNL was analyzed in Appendix D of the LLNL SW/SPEIS and the impacts for all potentially affected buildings are included. Information provided by individuals was considered. However, as indicated in Comment Response 14.01, information from the U.S. Geological Survey on seismic risk for the San Andreas, Calaveras, and Greenville faults was used because its analyses represent the best knowledge currently available for the seismic risk associated with these faults.

(10) A declassified security analysis should be provided that includes a summation of the efforts that went into the security study and the account of how the conclusions drawn from the study were integrated into the LLNL SW/SPEIS analysis.

Response: Chapter 5, Section 5.5, and Appendix D provide detailed analysis on potential accidents that could occur at LLNL. Comment Response 30.01 provides information on security concerns and indicates that it is not possible to predict whether intentional attacks would occur at LLNL or at other critical facilities, or the nature of the types of attacks that might be made. Nevertheless, NNSA reevaluated scenarios involving malevolent, terrorist, or intentionally destructive acts at LLNL in an effort to assess potential vulnerabilities and identify improvements to security procedures and response measures in the aftermath of the attacks of September 11, 2001. Security at NNSA and DOE facilities is a critical priority for the Department, and it continues to identify and implement measures designed to defend against and deter attacks at its facilities. Substantive details of terrorist attack scenarios and security countermeasures cannot be released to the public, as disclosure of this information could be exploited by terrorists to plan attacks.

(11) The use of fissile and fissionable materials in NIF experiments would take NIF in a new direction that would give it increased applicability for weapons design, and this work was not analyzed. The 1995 NIF Non-Proliferation Study does not address the use of these materials and therefore is not adequate for determining if the use of these materials is in compliance with the Non-Proliferation Treaty.

Response: A review of the treaty obligations and proliferation aspects of NIF was conducted and new information provided in Chapter 1, Section 1.3.1. of the Final LLNL SW/SPEIS. As Comment Response 01.01 states, NIF is an integral part of the SSP and as such was considered during NNSA's review of compliance with treaty and proliferation aspects of the SSP. Appendix I of the SSM PEIS provided an evaluation of the construction and operation of the NIF. As indicated in Chapter 1 of Appendix I, one of the objectives of the SSP is "Ensurance that the activities needed to maintain the Nation's nuclear deterrent are consistent with the Nation's arms control and nonproliferation objectives." Nonproliferation issues regarding NIF were evaluated in a December 19, 1995, study, *The National Ignition Facility and the Issue of Nonproliferation*. The study, prepared by the DOE Office of Nonproliferation and National Security and coordinated with the Arms Control and Disarmament Agency, Central Intelligence Agency, the Departments of Defense and State, concluded that (1) the technical proliferation concerns regarding NIF are manageable and therefore are acceptable, and (2) NIF can contribute positively to U.S. arms control and nonproliferation policy goals. As stated in Comment Response 01.01, NNSA has determined that the use of fissile material, fissionable material, and lithium hydride in NIF experiments is consistent with treaty obligations and the proliferation aspects of conducting these experiments are manageable.

(12) It is inappropriate to use a bounding accident scenario study for the BioSafety Level-3 (BSL-3) Facility that is out-of-date and based on a facility not at LLNL.

Response: Chapter 5, Section 5.5.4, and Appendix D, discuss the analysis of a biological accident. As indicated in Comment Response 25.04, for purposes of the LLNL SW/SPEIS, NNSA selected a representative facility accident that was previously analyzed by the U.S. Army in the *Final Programmatic Environmental Impact Statement*



*Biological Defense Research Program* (April 1989). NNSA believes that this accident scenario is comparable to and bounds potential accident scenarios associated with the BSL-3 Facility at LLNL. NNSA reviewed more recent environmental impact statements, including the U. S. Army's *Chemical and Biological Defense Program Final Programmatic Environmental Impact Statement* (May 2004) and the U.S. Department of Homeland Security's *Final Environmental Impact Statement for Construction and Operation of the National Biodefense Analysis and Countermeasures Center (NBACC) Facility* (December 2004) and concluded that these EISs incorporate the same bounding accidents and identify the same environmental impacts as the U.S. Army's earlier EIS issued in 1989 (i.e., the *Final Programmatic Environmental Impact Statement Biological Defense Research Program* [April 1989]).

(13) The impact analysis focused on LCFs in general rather than the population that is immune-suppressed as a result of LLNL operations. Additionally, radiological dispersal could result in measurable increases in cancer mortality for decades following an accident. Information was not provided on economic loss of farmland, loss of vineyards, and impacts on the local economy and property values.

Response: The human health effects on the general population around LLNL from radiation exposure in the Proposed Action are analyzed in Chapter 5, Section 5.4.14. As indicated in Comment Response 25.05, health effects other than LCFs could result from environmental and occupational exposures to radiation. These include nonfatal cancers among the exposed population and genetic effects in subsequent generations. Previous studies have concluded that these effects are less probable than fatal cancers as consequences of radiation exposure. Dose-to-risk conversion factors for nonfatal cancers and hereditary genetic effects (0.0001 per person-rem and 0.00013 per person-rem, respectively) are substantially lower than those for fatal cancers. The LLNL SW/SPEIS presents estimated effects of radiation in terms of LCFs because that is the major potential health effect from exposure to radiation. Any additional increases in cancer mortality or morbidity from exposure to residual environmental contamination from an accident would be minor considering that the increase in LCFs for the population exposed to the accident (highest concentrations) would only be 1.21 LCF under the bounding analysis. In addition, there is no evidence that the population surrounding LLNL is "immune suppressed" as a result of LLNL operations.

As indicated in Comment Response 25.06, NNSA focused the accident analysis on human health impacts among LLNL workers and the general public near LLNL. Secondary impacts could also result from the postulated facility accidents, such as loss of farm production, contamination, land usage, and ecological harm; however, they would not be significant within the 50-mile radius, which was analyzed in the LLNL SW/SPEIS. These secondary impacts were determined not to be a major discriminator among alternatives; therefore, they were not assessed in detail.

(14) The LLNL SW/SPEIS analysis does not address whether programs to modernize U.S. nuclear weapons are in compliance with international law. The LLNL SW/SPEIS should analyze all of the current and proposed activities at LLNL and their relationship to the NPT. The LLNL SW/SPEIS should analyze foreseeable plans for new nuclear

weapons development including the Robust Nuclear Earth Penetrator, the Reliable Replacement Warhead program, the Modern Pit Facility, and Enhanced Test Readiness.

Response: A review of the treaty and nonproliferation aspects of LLNL operations was added to Chapter 1, Section 1.3.1. As indicated in Comment Response 02.01, it is the United States policy for DOE to develop and produce the nation's nuclear weapons and to ensure their safety and reliability. With the end of the Cold War, DOE has been developing strategies for appropriate adjustments to its missions and activities consistent with current national security policies that reflect post-Cold War realities and threats. Some of these adjustments reflect a smaller weapons stockpile. However, even after the - Cold War, threats remain and nuclear deterrence will continue to be a cornerstone of U.S. national security policy for the foreseeable future. The Proposed Action is consistent with the NNSA mission assigned to LLNL and does not adversely affect the United States' compliance with any international law.

(15) A nonproliferation study should be conducted to determine if biodefense work at LLNL could undermine the Biological Weapons Convention (BWC). Collocating biodefense work at top-secret military labs could complicate negotiations of verification and enforcement protocols for the BWC. The LLNL SW/SPEIS does not respond to concerns that the BSL-3 Facility will be used to aerosolize and genetically modify biological agents and also have a large-capacity fermentor nearby.

Response: As stated in Comment Response 35.01, the United States is a signatory to the BWC, which prohibits the development and production of bioweapons. The BWC does not prohibit activities using biological agents that are for prophylactic, protective or other peaceful purposes. The operation of the BSL-3 facility would be consistent with the BWC as its activities will conform to treaty obligations. The facility is designed to accommodate work on detection and counterterrorism technologies, and will provide for environmentally safe and physically secure manipulation and storage of infectious microorganisms. Operations at this facility will not combine biological research and nuclear weapons activities. Verification requirements established by the Biological and Toxin Weapons Convention will be met with. The BSL-3 facility will be used for many operations with biological infectious agents; however, all biological agents would be managed in accordance with the *Centers for Disease Control and Prevention BioSafety in Microbiological and Biomedical Laboratories Guidelines*.

(16) An environmental analysis should be done on the manufacturing of tritium targets and on the Tritium Facility Modernization Project.

Response: The manufacture of tritium targets and the Tritium Facility Modernization Project were analyzed in preparation of the LLNL SW/SPEIS. Chapter 3, Section 3.3.5, provides information on the new activities that are considered under the Proposed Action such as the high-energy density physics target fill and the Test Readiness Program. Chapter 5, Section 5.3.8, provides an analysis of the increased use of tritium to support SSP activities in the Tritium Facility. Comment Response 34.01 provides information on

the environmental analysis of proposed programs in the Tritium Facility including filling of tritium targets, the Test Readiness Program and the Tritium Facility Modernization Project. Comment Response 26.04 also provides information on high-energy density physics target fabrication at the Tritium Facility and includes the resulting environmental impacts. Comment Response 31.09 provides additional information on the Tritium Facility Modernization Project.

(17) Additional information should be provided on the likelihood and consequences of shifting from TRUPACT II to TRUPACT III containers for shipping transuranic waste. Analysis should be conducted on the increased rate of public exposure to transuranic waste, the heightened risk of transportation accidents, and the TRUPACT III Containers greater susceptibility to terrorist attacks.

Response: Chapter 3, Section 3.3.15 discusses the use of TRUPACT II containers for shipment of transuranic waste. As indicated in Comment Response 20.05, the proposed TRUPACT-III shipping package would be a Type B container as defined by Department of Transportation and the NRC. Accordingly, it will be required to meet the same stringent safety and performance standards as the TRUPACT-II. Should NRC certify this package and should DOE propose to use it for waste shipments from LLNL, the package would be used in compliance with its certification and safety analysis report. NNSA has not evaluated its use, and prior to the certification of the package, cannot state whether any LLNL transuranic waste would be shipped in a TRUPACT-III. The transuranic waste transportation accident analysis in the LLNL SW/SPEIS was performed under the assumption that a TRUPACT-II would be used. Given that the TRUPACT-III would also be required to meet all requirements for a Type B container, it is unlikely that results would change if NNSA were to use a TRUPACT-III container. Should DOE adopt the TRUPACT-III, DOE will ensure that its use remains within the safety envelope of previous analyses for the TRUPACT-II.

### **Mitigation Measures**

CEQ's NEPA regulations require that an EIS include a discussion of means to mitigate adverse effects. As described in the LLNL SW/SPEIS, NNSA and LLNL operate under existing laws, programs, and controls, including regulations, policies, and contractual requirements; many of these requirements mandate actions that would mitigate potential adverse affects. Examples include the Environment, Safety and Health Manual, emergency plans, Integrated Safety Management System, pollution prevention/waste minimization program, several protected species programs, and energy and water conservation programs. To date, NNSA has not identified additional mitigation measures for resource areas evaluated in the LLNL SW/SPEIS. It will continue to implement existing procedures and controls, or appropriately updated ones, during implementation of the Proposed Action. For biological resources, NNSA will implement the reasonable and prudent measures necessary to avoid or minimize incidental taking of listed species and will carefully consider implementation of conservation recommendations determined as a result of consultation with the U.S. Fish and Wildlife Service. For cultural resources, NNSA will implement agreed-upon treatment strategies to preserve historic

properties determined through consultation with the California State Historic Preservation Office.

## **Decisions**

The impacts identified in the LLNL SW/SPEIS were based on conservative estimates and assumptions. In this regard, the analyses bound the impacts of the alternatives evaluated in the LLNL SW/SPEIS. The Proposed Action would result in an increase in LLNL operations to support reasonably foreseeable mission requirements. This includes the expansion or modification of current facilities and construction of new facilities, as well as those projects, activities, and facilities described in the No Action Alternative. The LLNL SW/SPEIS and the analyses it contains may support additional programmatic or project decisions in the future. The implementation of these decisions and the schedules for implementation depend on funding levels and allocation of the DOE/NNSA budget.

NNSA's review of the data and methodologies used in accident analyses verified that the LLNL SW/SPEIS correctly identifies bounding site accidents and estimates their potential consequences. This review found a small number of minor discrepancies on non-bounding site accident scenarios. Information concerning these discrepancies is available from Thomas Grim, the NNSA Document Manager for the LLNL SW/SPEIS, at the address and phone number included at the beginning of this ROD. These discrepancies are negligible and the LLNL SW/SPEIS adequately evaluates the potential impacts of the alternatives.

NNSA has decided to implement the preferred alternative, the Proposed Action with the exception of the Energetic Materials Processing Center Replacement and High Explosives Development Center Project. With the issuance of this ROD, NNSA will begin to expand operations at LLNL critical to NNSA's Stockpile Stewardship Program. The major decisions are increasing the administrative and material-at-risk limits for plutonium in the Plutonium Facility and increasing the administrative and material-at-risk limits for tritium in the Tritium Facility. NNSA will review and approve the appropriate documentation and procedures required to implement the increase to a 1,400 kilogram administrative limit for plutonium and the 40 kilograms of fuel-grade equivalent plutonium material-at-risk limit for two rooms for the Plutonium Facility. NNSA will conduct experiments at the NIF using plutonium, other fissile materials, fissionable materials, and lithium hydride. These decisions are discussed in more detail in the following paragraphs.

NNSA continues to rely on LLNL to meet its Stockpile Stewardship Program objectives. These objectives include campaigns relating to pit manufacturing and certification, advanced radiography, dynamic materials properties, materials shelf life experiments, and enhanced surveillance research, which contribute to the need for long-term storage of plutonium. These campaigns and programs require increasing use of plutonium. NNSA continues to work on a solution for disposal of plutonium, but no pathway for disposal of the excess plutonium at LLNL currently exists, requiring an increase in the plutonium administrative limits. A July 2005 report issued by the Government Accountability Office, *Securing U.S. Nuclear Materials*, discusses some of the problems that need to be

solved in order to develop a disposal path for excess plutonium. These problems have not yet been resolved and the amount of plutonium stored at LLNL will increase as NNSA continues to operate the Plutonium Facility. Therefore, NNSA has decided to increase the administrative limit for plutonium to 1,400 kilograms. The inventory will continue to be stored in robust vaults in the facility.

NNSA has decided to increase the plutonium material-at-risk limit from 20 to 40 kilograms of fuel-grade equivalent plutonium in each of two rooms of the Plutonium Facility. The material-at-risk limit for all other rooms would remain at 20 kilograms fuel grade equivalent plutonium. The increases are needed to meet future Stockpile Stewardship Program objectives such as the casting of plutonium parts. These activities support campaigns for advanced radiography, pit manufacturing, and certification.

NNSA has decided to increase the tritium administrative limit for the Tritium Facility from 30 to 35 grams and the material-at-risk at a single workstation from 3.5 to 30 grams. These increases are needed to support future planned Stockpile Stewardship Program activities such as the high-energy density physics target fill and the Test Readiness Program.

NNSA has decided to use plutonium, other fissile materials, fissionable materials, and lithium hydride in experiments at the NIF as evaluated in the LLNL SW/SPEIS. This decision is based on the need for a variety of experiments using fissionable and fissile material at the NIF. NIF will perform experiments with plutonium or highly enriched uranium without ignition to study the equation of state of these materials. Experiments will be conducted to measure fundamental nuclear physics properties using plutonium or highly enriched uranium that require ignition. Experiments will be conducted with lithium hydride, which is not a special nuclear material, with and without ignition. These are materials physics and equation of state experiments designed to address fundamental physical behavior of this material and to allow benchmarking of physical models of the material. Experiments will be performed with depleted uranium with ignition. These experiments require materials with high atomic numbers collocated on the ignition target to enhance the conversion of laser light to x-rays for inertial confinement fusion experiments.

In accordance with the provisions of NEPA, its implementing procedures and regulations, and DOE's NEPA regulations, I have considered the information contained in the LLNL SW/SPEIS and public comments received in response to the both the Draft and Final LLNL SW/SPEIS. Being fully apprised of the environmental consequences of the

alternatives and other information relevant to these decisions, I have decided to continue operations at LLNL as described in the Proposed Action with the exception of the Energetic Materials Processing Center Replacement and High Explosives Development Center Project. This decision will help enable the Department to maintain the core intellectual and technical competencies of the United States in nuclear weapons, and maintain a safe and reliable nuclear weapons stockpile. In making this decision, all practicable means to avoid or minimize environmental harm from implementation of the Proposed Action will be adopted. NNSA will consider changes in its programmatic needs prior to implementing Proposed Action projects. The implementation of these decisions and the schedules for their implementation depend on funding levels and allocation of the DOE/NNSA budget. Their implementation also depends on the results of NNSA's continuing assessment of its mission needs and of LLNL's role in meeting those needs.

Issued in Washington, DC, on \_\_\_\_\_, 2005

**Linton F. Brooks**

Administrator, National Nuclear Security Administration

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