

**SUPPLEMENT ANALYSIS  
FOR CONTINUED OPERATION OF  
LAWRENCE LIVERMORE NATIONAL LABORATORY  
AND SANDIA NATIONAL LABORATORIES, LIVERMORE**

**SUMMARY**

This supplement analysis (SA) was prepared in accordance with the U.S. Department of Energy's (DOE's) requirements for implementation of the National Environmental Policy Act of 1969 (NEPA) (10 CFR 1021.314). It considers whether the *Final Environmental Impact Statement and Environmental Impact Report for Continued Operation of Lawrence Livermore National Laboratory and Sandia National Laboratories, Livermore* (1992 EIS/EIR) should be supplemented, a new environmental impact statement (EIS) should be prepared, or no further NEPA documentation is required.

Copies of the draft SA were made available for a 30-day period for public comment. Two public meetings were held at Lawrence Livermore National Laboratory (LLNL), and comments were recorded. This final SA includes changes resulting from those comments as well as from editorial review. A comment and response document addressing all comments has been prepared.

DOE regulations require that sitewide EISs, such as the 1992 EIS/EIR, shall be evaluated at least

**Findings**

- ◆ This supplement analysis evaluated a set of new and modified projects and proposals and other new information and concluded that no supplementation of the 1992 EIS/EIR for Lawrence Livermore National Laboratory (LLNL) and Sandia National Laboratories (SNL), Livermore, is needed. Either the projected impacts are within the bounds of the 1992 EIS/EIR, the impacts were anticipated by mitigation measures established in the 1992 EIS/EIR, or the incremental differences in impacts are not significant.
- ◆ While proposed increases in administrative limits for radioactive materials at LLNL might slightly increase radiological releases during accidents, the resulting consequences are expected to remain essentially the same as described in the 1992 EIS/EIR.
- ◆ The discovery of new resources not anticipated in the 1992 EIS/EIR included discovery of mammoth and other prehistoric fossil bones at the National Ignition Facility (NIF) site, presence of the California red-legged frog in site drainage ditches, and nesting of the white-tailed kite at LLNL. In addition, capacitors containing polychlorinated biphenyls were unearthed at the NIF site. These discoveries resulted in the application of mitigation measures established in the 1992 EIS/EIR or in project-specific NEPA documents, consultation with appropriate authorities, and additional studies.
- ◆ The environmental consequences related to these new circumstances are insignificant, and the overall picture of sitewide LLNL and SNL operations remains very similar to that presented in the 1992 EIS/EIR. For these reasons, no supplementation of the 1992 EIS/EIR is needed.

every 5 years after issuance to determine whether a supplemental EIS is necessary (10 CFR 1021.330[d]). This SA examines the current project and program plans and proposals for LLNL and Sandia National Laboratories (SNL), Livermore, operations to identify new or modified projects or operations or new information for the period from 1998 to 2002 that was not considered in the 1992 EIS/EIR. When such changes, modifications, and information are identified, they are examined to determine whether they could be considered substantial in reference to the 1992 proposed action and the 1992 record of decision (ROD). The determinations of whether changes are substantial are based upon analysis and review that establish whether any changes, new circumstances, or new information results in potential for environmental impacts that exceed the bounds (or envelope) of the consequences of LLNL and SNL operations as presented in the 1992 EIS/EIR; and if the bounds are exceeded, whether these incremental environmental impacts identified in the SA are significant, as defined in 40 CFR 1508.27.

The proposed action evaluated in the 1992 EIS/EIR was "the continued operation of LLNL and SNL, Livermore, including near-term (within 5 to 10 years) proposed projects." The proposed action included "[then] current operations plus programmatic enhancements and facility modifications pursuant to research and development missions established for the Laboratories by the Congress and the President." SNL continues to operate within the levels described in 1992. No significant new programs or projects have been proposed since 1992 or are now planned for SNL for the near future (by 2002). In fact, DOE phased out the operations at the Tritium Research Laboratory and completed its decontamination in 1996. The SNL evaluation revealed that the impacts were within the bounds of the 1992 EIS/EIR or the incremental differences in impacts were not significant. No supplementation of the 1992 EIS/EIR is needed on the basis of SNL activities.

LLNL continues to operate within the general statement of action described in 1992. However, some projects and proposals included in the 1992 EIS/EIR have been cancelled, some have been modified, and some new ones have been developed. In addition, some new information is available on the site environment. A list was made of this modified and new information on the basis of existing environmental documents prepared since 1992, institutional and other plans, changes in regulations, and a recent addendum prepared for the EIR portion of the EIS/EIR pursuant to the California Environmental Quality Act (CEQA). Managers at LLNL and DOE were also asked to identify new proposals or projects and changes in site operations, and they were asked to review the list as it was developed. Nineteen modified or new key projects or proposals were identified that would be implemented between 1998 and 2002. Also identified were proposed changes in administrative limits<sup>1</sup> for radioactive materials and changes in waste generation and management. New information related to the site environment included current employment conditions (a declining, rather than an expanding, workforce); the presence of two animal species of special interest at the Livermore site; the discovery of paleontological

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<sup>1</sup> Administrative limits are criteria that establish the maximum quantities of radioactive materials that may be present in a building or group of buildings at LLNL.

resources at the National Ignition Facility (NIF) construction site; and a proposal to improve the drainageway in Arroyo Las Positas.

The following approach was used to determine whether supplementation of the 1992 EIS/EIR is necessary. First, environmental impact areas were screened to determine whether it was clear that impacts of LLNL operations, considering this new information, would remain within the envelope of environmental consequences established in the 1992 EIS/EIR. This screening determined that the impacts of continued operations likely remain within the bounds of the 1992 EIS/EIR for air quality, noise, water quality, hazardous materials, ecology (vegetation, fish, and wildlife), cultural and archeological resources, land use, transportation, socioeconomics, and miscellaneous areas. In none of these impact areas is supplementation of the 1992 EIS/EIR needed.

Second, further analysis was conducted for the seven impact areas not eliminated by the initial screening: sensitive species, wetlands, paleontological resources, radiological consequences of accidents, waste generation and management, environmental justice, and cumulative impacts. These areas were evaluated to establish whether the potential impacts were likely to remain within the bounds of the 1992 EIS/EIR, and, if not, whether any differences were significant. The findings in these seven areas are summarized below.

**Sensitive Species** — The California red-legged frog (federally listed threatened species), formerly observed only at Site 300, was found on the Livermore site in Arroyo Las Positas in July 1997. In 1994, 1995, 1997, and 1998, white-tailed kites (state protected bird species) nested successfully at the Livermore site. Consultation with the U.S. Fish and Wildlife Service (FWS) regarding the California red-legged frog at the Livermore site was completed in 1998. Impacts at the Livermore site would be mitigated as specified in the 1998 Biological Opinion from the FWS. Projected impacts of activities at the Livermore site and Site 300 would continue to be subject to the mitigation measures described in the 1992 EIS/EIR. During the period 1998 to 2002, any actions at LLNL, including new or modified actions, would be implemented subject to the application of appropriate project-specific mitigation measures. If new sensitive species or habitats are identified, additional levels of protection from inadvertent impacts and mitigation for unavoidable impacts would be developed early in the planning process. For these reasons, the 1992 EIS/EIR and its past and current mitigation measure commitments, including recent refinements, remain adequate to properly protect threatened, endangered, or special status species. No supplementation of the 1992 EIS/EIR is needed for species-related issues at this time.

**Wetlands** — Maintenance of the floodway in Arroyo Las Positas at the Livermore site would disturb approximately 20% of associated wetlands each year. However, management of the floodway would not result in elimination of associated wetland, and wetland vegetation would be maintained. Impacts to the California red-legged frog would be mitigated on the basis of consultation with the FWS, which has rendered a Biological Opinion for this action. The mitigation plan includes scheduling maintenance activities to avoid involvement with the California red-legged frog, protecting habitat for the California red-legged frog, and

compensating for any incidental take of individual frogs. Impacts related to Arroyo Las Positas are not considered significant for the purposes of this SA because (1) arroyo management would continue to maintain the wetland, (2) issues regarding federally listed species are being resolved with the appropriate regulatory authority, and (3) mitigation measures for minimizing potential impacts have been developed. For these reasons, supplementing the EIS/EIR for wetlands is not needed.

**Paleontological Resources** — Excavation for the NIF in late 1997 unearthed mammoth and horse fossils. Those fossils that would be affected by construction were excavated and curated at the University of California Museum of Paleontology at Berkeley. Any new discoveries would be managed in accordance with the mitigation measures identified in the 1992 EIS/EIR for prehistoric resources. Supplementation of the EIS/EIR for paleontological resources is not needed.

**Radiological Consequences of Accidents** — The bounding radiological accident consequences presented in the 1992 EIS/EIR were examined in light of changes proposed in the administrative limits for uranium and plutonium and the change in the bounding accident identified in the 1995 SAR for Building 332. If a uranium criticality event were to occur in Building 332, the estimated number of excess fatal cancers per year among the exposed population would double from that estimated for the plutonium criticality event in the 1992 EIS/EIR, but the risk would still be less than one fatal cancer. The increased number of experiments or operations in Building 332 directly associated with the proposed increase in the uranium administrative limit would add a small incremental risk. Changes in the administrative limits for other buildings would result in no changes or very small changes in potential consequences and risks. Although the calculated consequences and risks to exposed populations and to the maximally exposed individual have increased in some cases since publication of the 1992 EIS/EIR, the impacts still are not significant, and supplementation of the EIS/EIR for radiological accidents is not needed.

**Waste Management** — The review of current and projected LLNL waste management practices through the year 2002 indicates a shift from on-site storage of low-level radioactive waste (LLW), transuranic (TRU) waste, and low-level mixed waste (LLMW) to off-site treatment, storage, and disposal. This shift and a projected reduction in waste generation by the year 2002 are expected to reduce the associated potential safety and health hazards to LLNL workers handling this waste and to off-site populations. Projected changes in hazardous waste management practices are expected to reduce the waste retention time at the on-site 90-day storage facilities, which would reduce multiple handling of waste containers and, consequently, the potential safety and health hazards associated with that handling. With completion of the Decontamination and Waste Treatment Facility (DWTF) in the year 2000, implementation of the LLW and TRU certification programs, and continuation of the waste minimization program at LLNL, impacts from waste management operations are expected to be below the levels projected for the year 2002 in the 1992 EIS/EIR. This assessment is supported by improved routine waste generation projections from recent actual data and incorporates the assumption that nonroutine waste generation would be at about the current levels in the year 2002. In fact, even with this conservative assumption, total waste generation at LLNL in the year 2002 is expected to be

about 20% lower than the EIS/EIR 1992 baseline levels for LLW, LLMW, and hazardous waste (HW), and about 75% lower for TRU waste. These considerations and analyses support the conclusion that the 1992 EIS/EIR adequately bounds the impacts from waste management activities through the year 2002.

**Environmental Justice** — After the issuance of the environmental justice Executive Order in 1994, environmental justice issues were assessed for LLNL as part of the Waste Management Programmatic Environmental Impact Statement (PEIS), the Stockpile Stewardship and Management PEIS, and the Surplus Materials and Disposition PEIS. These studies concluded that, for those programmatic actions, there would be no disproportionately high and adverse impacts to minority or low-income populations near the Livermore site. The largest facility to be constructed during this period would be the NIF. The supporting documentation for the NIF portion of the Stockpile Stewardship and Management PEIS concluded that the construction and operation of NIF would not pose disproportionately high and adverse effects on either minority or low-income populations because none of the projected impacts would be high or adverse. This SA also considered the impacts of new and proposed key projects at the Livermore site and Site 300, including consequences of tritium releases. It is not expected that any of the new or modified key proposals and projects from 1998 to 2002, either individually or in combination, would result in disproportionately high and adverse impacts to minority and low-income populations because none of the impacts would be high or adverse. No supplementation with respect to environmental justice is needed.

**Cumulative Impacts** — A stable workforce would stabilize LLNL's contribution to population-related community and regional impacts. Mitigation measures for vegetation and wildlife, threatened and endangered species, and wetlands would continue to be employed. Construction of NIF and other facilities would result in particulate emissions (PM<sub>10</sub>) in a nonattainment area, an impact of site operations identified in the 1992 EIS/EIR. Release of tritium from NIF and water and power use by the NIF and the Terascale Simulation Facility are estimated to be less than or substantially similar to cumulative factors projected in the 1992 EIS/EIR. No other federal or non-federal actions have been implemented or are reasonably foreseeable that, in combination with the incremental contribution of LLNL and SNL activities, could have an adverse cumulative impact not anticipated in the 1992 EIS/EIR. Supplementation of the EIS/EIR for cumulative impacts is not needed.

**Conclusions** — This SA evaluated a set of new and modified projects and proposals and other new information and concluded that no supplementation of the 1992 EIS/EIR is needed for any factor. Either the projected impacts are within the bounds of the 1992 EIS/EIR, they were anticipated by mitigation measures established in the 1992 EIS/EIR, or the incremental differences in impacts are not significant. The discovery of new resources not anticipated in the 1992 EIS/EIR included fossil bones of mammoths and other species at the NIF site, presence of the California red-legged frog in site drainage ditches, and nesting by the white-tailed kite at LLNL. In addition, capacitors containing polychlorinated biphenyls (PCBs) were unearthed at the NIF site. These discoveries resulted in the application of mitigation measures established in the 1992 EIS/EIR or in project-specific NEPA documents, consultation with appropriate authorities, additional studies, and implementation of project-specific regulatory abatement

and/or cleanup actions. As a result, the environmental consequences related to this new information are small, and the overall picture of sitewide LLNL and SNL operations remains very similar to that presented in the 1992 EIS/EIR. For these reasons, no supplementation of the 1992 EIS/EIR is needed.