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DEPARTMENT OF ENERGY
FINDING OF NO SIGNIFICANT IMPACT
LOW ENERGY ACCELERATOR LABORATORY
LOS ALAMOS NATIONAL LABORATORY

PROPOSED ACTION: The Environmental Assessment (EA) for the Low Energy Accelerator Laboratory (LEAL), Los Alamos National Laboratory (LANL), Los Alamos, New Mexico (DOE/EA-0969), March 1995, analyzes the Department of Energy (DOE) proposal to construct and operate a small research and development laboratory building at Technical Area (TA) 53 at LANL. DOE proposes to construct the LEAL at a previously disturbed (graded) quarter-acre site next to other facilities housing linear accelerator research activities at TA-53. Operations proposed for LEAL would consist of bench-scale research, development, and testing of the initial section of linear particle accelerators. This initial section consists of various components that are collectively called an injector system. The results of testing on this initial section will be used to assist in improving the design to accommodate the physical requirements of high-power accelerators now under study for future programmatic applications. The next generation of higher-power accelerators will require a higher flux of subatomic particles, or beam current, than is currently available. The extrapolation of present operating beam current levels to the higher levels required has been verified theoretically. However, the proposed action would, in part, further the technological advancement of the low energy initial section of the system that supplies the beam current to the linear accelerator.

The proposed action is to construct a two-story, pre-engineered metal building that would feature a high bay laboratory area, as well as supporting shops and offices. The building would be operated as a laboratory for the research and development, and assembly and

testing of accelerator injection system components. The anticipated life span of the proposed development program would be about 15 years.

The EA compares the impacts of the proposed action with the impacts of not constructing and operating the facility (the "no action" alternative). DOE considered, but dismissed as unreasonable, alternatives including the installation and operation of the LEAL in an existing LANL facility; construction of a new facility, installation and operation of the LEAL at another LANL site; and installation and operation of the LEAL at another DOE facility other than LANL. The rationales for dismissing these alternatives were based on the fact that sufficient space was not available in existing buildings; no locations for new construction were found that had readily available utilities or were easily accessible to support facilities and to workers performing accelerator research and development; and other DOE facilities were eliminated because they lacked similar research programs with necessary infrastructure and resident expertise.

ENVIRONMENTAL IMPACTS: The EA indicates that the environmental impacts from constructing a facility and from the installation and operation of the LEAL would be minimal. The LEAL would be constructed on a disturbed site in a developed area at LANL. No cultural resources, threatened, endangered, or sensitive species are present at the proposed building site. No floodplain or wetland area would be impacted. No solid waste management units or surface contamination areas have been identified for the proposed site. Construction debris would be disposed of at an existing facility. Air quality would be affected by dust and diesel fumes for a short time during construction. Thereafter, small quantities of solvents used to clean equipment would result in low levels of emissions. All

emissions are projected to be far below regulatory thresholds set to protect members of the public. No radioactive materials would be emitted. The non-contact cooling water system would release about 10,000 gallons of water annually to the environment from water cooling system discharge. This discharge would be routed through an existing National Pollution Discharge Elimination System (NPDES) permitted outfall. Operating the LEAL would not require siting, construction or expansion of any solid waste disposal, recovery or treatment facilities at LANL. The LEAL would be designed with lead shielding and other features to protect workers from accidental exposure to x-rays generated during test operations. Operating safety procedures would be enforced and design features would be incorporated into the test equipment to shut down the system in case of a malfunction. The bounding operational parameters for the experimental injection system would be of such a low energy level that no components would be expected to become radioactive. Generated energy would be dissipated as both heat and x-rays. Individual exposures to x-rays by involved workers would be expected to be below 0.1 rem annually. No fatal cancers among workers would be anticipated to result from the LEAL operations at this level of exposure over the life of the project. No exposure to the public from x-rays would result from the proposed action. Environmental impacts from not developing the site under the no-action alternative would be the continued natural erosional weathering and re-vegetation of the site.

Since no radioactive or toxic materials would be used by the operations in the LEAL building, the environmental impacts of an accident, such as a fire, would not differ significantly from the impact of a fire in an office building or storage building of similar size. The system shutdown safety features would protect workers in the event of a system

malfunction that resulted in abnormal beam operation. The dose to an individual worker from a momentary increase in x-ray fluxes before the beam is automatically shut down would not be expected to exceed 0.1 rem.

No new environmental permits would be required to construct and operate the LEAL facility. The LANL RCRA permit would be amended to include a satellite accumulation point for hazardous waste at LEAL. Both the Fish and Wildlife Service and the New Mexico Fish and Game Department provided information on threatened, endangered, sensitive and candidate species that might be found in the Los Alamos area. The site for the LEAL was not identified as being important for endangered or threatened species or their habitat. Because no significant impacts were identified, DOE did not identify any special mitigation measures needed to ameliorate adverse impacts.

On December 23, 1994, DOE invited review and comment on the preapproval EA from the State of New Mexico and four American Indian Pueblos: Cochiti, Jemez, Santa Clara and San Ildefonso. In addition, DOE made the preapproval EA available to Los Alamos County and the general public at the same time it was provided to the state and pueblos by placing it in the Los Alamos National Laboratory Community Reading Room. Also, copies of the pre-approval EA were provided directly to certain local stakeholder groups on January 5, 1995. An additional announcement was sent to the State of New Mexico on January 31, 1995. Comments were received from the San Ildefonso Pueblo on January 27, 1995 and from the State of New Mexico on March 27, 1995. The Pueblo provided comments questioning the location of the proposed facility being on contaminated property, solid and liquid waste disposal from the facility, particularly in LANL Area G (TA-54), conversion of

the LEAL into a high energy accelerator, and the need to ensure that funding for the LEAL would not adversely affect funding for environmental management efforts at LANL. The State provided comments requesting clarification on the disturbed status of the proposed site, the types of radioactive waste that would be generated, non-fatal health effects from radiation exposures, the need to explain the difference between radioactive air emissions and x-rays. In response to these concerns, the DOE provided letters to the San Ildefonso Pueblo and to the State that addressed each of their comments. Individual comments were addressed in the final EA as appropriate.

FOR FURTHER INFORMATION CONTACT: For further information on this proposal, this Finding Of No Significant Impact (FONSI), or the DOE's National Environmental Policy Act (NEPA) review program concerning proposals at LANL, please contact:

Elizabeth Withers, Acting NEPA Compliance Officer
Los Alamos Area Office
U. S. Department of Energy
528 35th Street
Los Alamos NM 87544
(505) 667-8690

Copies of the environmental assessment and this FONSI will be made available for public review at the Los Alamos National Laboratory Community Reading Room, 1450 Central Ave., Suite 101, Los Alamos, New Mexico, 87544 at (505) 665-2127 or (800) 543-2342.

FINDING: The United States Department of Energy (DOE) finds that there would be no significant impact from proceeding with its proposal to construct and operate the Low Energy Accelerator Laboratory Facility at TA-53 at the Los Alamos National Laboratory, Los Alamos, New Mexico. DOE makes this Finding of No Significant Impact pursuant to the National Environmental Policy Act of 1969 [42 U.S.C. 4321 et seq.], the Council on Environmental Quality (CEQ) regulations [40 CFR 1500] and the DOE NEPA regulations [10 CFR 1021]. Based on the environmental assessment which analyses the research and development proposal, the proposed action does not constitute a major federal action which would significantly affect the human environment within the meaning of NEPA. Therefore, no environmental impact statement is required for this proposal.

Signed in Los Alamos, New Mexico this 17 day of April, 1995.

Larry Kirkman, P.E.
Acting Area Manager
Los Alamos Area Office