

**NEPA REVIEW**  
**LAN-11-0001**

**CATEGORICAL EXCLUSION**

**REPLACEMENT OF LOS ALAMOS NEUTRON SCIENCE CENTER (LANSCE)  
OPERATIONAL EQUIPMENT**

**1. DESCRIPTION OF PROPOSED ACTION:**

As part of the LANSCE Risk Mitigation Project, Los Alamos National Laboratory proposes to refurbish critical operating programmatic equipment at the LANSCE facility at TA-53. The project would replace aging components and infrastructure that comprise a substantial risk to Linear Accelerator (LINAC) performance and reliability, but would not refurbish conventional facility infrastructure (buildings, cooling water, power distribution, building structure, etc.) except where necessary to support the refurbishment of this equipment.

The 38-year-old LANSCE 800-MeV LINAC at LANL is unable to operate at its historic performance levels and is at risk for further decline in performance, which could lead to eventual failure by 2020. The LINAC must be restored to its historic performance levels and operate reliably until at least 2020 to meet National Nuclear Security Administration missions.

The LANSCE Risk Mitigation Effort would provide prioritized and staged investments in LINAC operations, beam delivery, and facility infrastructure components. Each component of the Risk Mitigation Effort would reduce the risk of LINAC failure regardless of whether other components were implemented. The project would use common, standard, mature, and widely accepted technologies to replace and upgrade the LINAC and its infrastructure. Some equipment for this project would be customized to meet the same performance standards as the original equipment. Because of the necessary customization, a full set of these replacement parts must be obtained from the supplier at the beginning of the project, both to replace the existing components and to have a supply of components on hand for future replacements.

The proposed project would:

- Purchase, assemble, and test replacement klystrons, which serve as amplifiers, having the same form, fit, function and capability as the existing equipment. LANL's supply of replacement klystrons has been exhausted and identical replacement parts are no longer available. LANL must obtain modernized replacements that fulfill the same functions as the originals.
- Replace obsolete and end-of-life LINAC radio-frequency (RF) power and phase/amplitude control systems that drive the drift-tube (DTL) LINAC and coupled-cavity (CCL) LINAC systems. These systems must be tailored to the new amplifier equipment.
- Replace the obsolete LINAC timing system with a modern, supported, maintainable digital-network-based system that can also be tailored to the new amplifier equipment.

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- Replace the obsolete elements of facility infrastructure necessary to support the LINAC work described above.
- The project would then assemble, test, and install 201.25-MHz final power amplifiers and associated cooling-water and low-level RF system modifications.

LANL would design and manage this project (December 2010 through September 2013) and install the replacement equipment under the direction of NNSA. Upon authorization to proceed with the project, LANL would begin the process of designing, fabricating, and bench testing replacement equipment. Installation, integration, and checkout (with the beam off) of refurbished equipment would occur during the FY12 and FY13 annual maintenance outages and final project closeout would be completed by September 2013. The integration and checkout process would ensure all testing, designing, fabricating, and installation requirements have been met successfully.

**2. CATEGORICAL EXCLUSION BEING APPLIED:**

**10 CFR 1021, Appendix B1.3:** Routine maintenance activities, such as: corrective (that is, repair), preventive, and predictive, are required to maintain and preserve buildings, structures, infrastructures, and equipment in a condition suitable for a facility to be used for its designated purpose. Routine maintenance may result in replacement to the extent that replacement is in kind and is not a substantial upgrade or improvement. In kind replacement includes installation of new components to replace outmoded components if the replacement does not result in a significant change in the expected useful life, design capacity, or function of the facility. Routine maintenance does not include replacement of a major component that significantly extends the originally intended useful life of a facility (for example, it does not include the replacement of a reactor vessel near the end of its useful life).

**REGULATORY REQUIREMENTS IN 10 CFR 1021.410 (B):**

1. The proposed action fits within a class of actions that is listed in Appendix B to Subpart D.

For classes of actions listed in Appendix B, the following conditions are integral elements; i.e., to fit within a class, the proposal must not:

- a. Threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including DOE and/or Executive Orders;
- b. Require siting, construction, or major expansion of waste storage, disposal, recovery, or treatment facilities, but may include such categorically excluded facilities;

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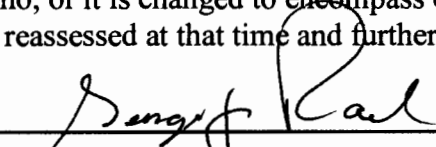
- c. Disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; or,
  - d. Adversely affect environmentally sensitive resources (including but not limited to those listed in paragraph B. (4)).
2. There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal; and,
  3. The proposal is not "connected" to other actions with potentially significant impacts, is not related to other proposed actions with cumulatively significant impacts, and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211.

**3. NEPA COMPLIANCE OFFICER CLASSIFICATION/DETERMINATION:**

This proposal is covered by a NEPA categorical exclusion in accordance with Appendix B to Subpart D of 10 CFR 1021, and meets the requirements of 10 CFR 1021.410 (B) listed above.

If changes are made to the scope of action so that it is no longer bounded by the action described in this memo, or it is changed to encompass other actions, NEPA requirements for the action will need to be reassessed at that time and further analysis may be required.

Signature: \_\_\_\_\_



Date: Dec 1, 2010

**George Rael, LASO NEPA Compliance Officer**