Department of Energy
Finding of No Significant Impact
Radioactive Source Recovery Program

Los Alamos National Laboratory

U. S. Department of Energy
Los Alamos Area Office
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DOE
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Item 6

DEPARTMENT OF ENERGY
FINDING OF NO SIGNIFICANT IMPACT
RADIOACTIVE SOURCE RECOVERY PROGRAM
LOS ALAMOS NATIONAL LABORATORY

PROPOSED ACTION: The Environmental Assessment (EA) for the Radioactive Source Recovery Program at the Los Alamos National Laboratory (LANL), Los Alamos, New Mexico (DOE-EA-1059), December, 1995, analyzes the Department of Energy (DOE) proposal to implement a routine program for the receipt and recovery of unwanted and excess plutonium-beryllium (^{238}Pu-Be) and americium-beryllium (^{241}Am-Be) sealed neutron sources. These sources are currently in the possession of commercial users, academic institutions, source brokers and other government agencies. Approximately 1 kg (2.2 lb) of plutonium and 3 kg (6.6 lb) of americium would be recovered at LANL over a 15-year period.

The receipt, storage and recovery of these sources would take place in Technical Area (TA)-3 and in TA-55 at LANL. The current neutron source holders would ship their unwanted sources to TA-3 at LANL where their identities would be verified, their outer shells of stainless steel would be breached, and their neutron-producing source materials would be recovered by the chemical separation of the americium oxide or the plutonium oxide from the beryllium or the beryllium oxide. Recovery operations would be conducted at both TA-3 and at TA-55. Recovered radioactive materials would be placed into interim storage at TA-55. Radioactive liquid waste would be disposed of at the Radioactive Liquid Waste Treatment Facility in TA-50. Low level radioactive solid waste would be disposed of at the Low Level Radioactive Waste Disposal site, Area G, in TA-54.

Minor equipment procurement and installation would be required in the Chemistry and Metallurgy Research (CMR) Building in TA-3 to accommodate the proposed action. Equipment, including liners for the hot cells (alpha boxes for contamination control), glove boxes, security monitors, and various radiation detectors would be purchased from commercial vendors. Minor equipment procurement and installation would also be required at the Plutonium Facility Building 4 at TA-55. All equipment would be removable and so would not constitute a permanent modification to either building. No new construction would be required under the proposed action.

This EA compares the effects of the proposed action with the effects of not establishing a routine receipt, storage and recovery program at LANL for unwanted neutron sources and responding to unwanted source concerns on an emergency basis only (the "no action" alternative). DOE considered, but dismissed from further analysis, alternatives including the recovery of source materials at alternative LANL facilities, recovery of source materials at alternative DOE sites other than LANL, recovery of source materials at commercial facilities and long-term storage of sources without planned recovery of radioactive materials. The rationales for dismissing each of these alternatives is provided in Section 2.3 of the Final EA. They are based on the fact that none of the alternatives would reasonably meet the purpose and need for agency action to ensure that the DOE receive and store sufficient numbers of neutron sources to protect the public health and safety, to protect the health and safety of workers, to perform the operations efficiently and to store the recovered materials for future uses consistent with DOE's current missions.

ENVIRONMENTAL EFFECTS: The EA indicates that the environmental effects from the receipt, storage and recovery of these unwanted sources would include the generation of small volumes of radioactive liquid and solid wastes, radiological dose and human health effects, non-radiological air emissions from transportation activities and potential emissions of airborne radioactive materials from accidents. Numerous administrative and engineering barriers to these potential effects are integrated into the proposed action to eliminate or mitigate these potential effects. No cultural resources or threatened or endangered species would be affected by the proposed action. No floodplain or wetland areas would be affected. No environmental justice issues have been identified. No new environmental permits would be required to conduct radioactive source recovery operations at LANL.

The proposed action could generate approximately 6,200 liters (1,600 gallons) of liquid low-level waste per year that would be treated at the Radioactive Liquid Waste Treatment Facility at LANL. Approximately 0.12 cubic meters (4.2 cubic feet) of solid Low-level waste could be generated annually. It would be disposed of at TA-54, Area G, at LANL. Radiation dose contributions resulting from the proposed action could result in an annual dose to the maximally exposed worker (Hot Cell Facility operators) of approximately 230 mrem/year. This dose is comparable to the average dose to CMR Hot Cell Facility workers of 225 mrem/year. Dose contributions resulting from the transportation of solid Low-level waste from the CMR Building to TA-54 are considered to be extremely small as a result of the short duration of the transfer, the limited amount (approximately one drum) of radioactive waste and shielding. The proposed action would have a small effect on onsite transportation by increasing the number of miles driven as a result of all aspects of the radioactive source recovery program by approximately 500 miles per year (800 kilometers

per year). Under routine conditions, the proposed action would not be expected to produce a measurable increase in the airborne emissions of plutonium or americium from the CMR building to the environment.

Based on the potential for highest dose, the bounding event was an exothermic reaction causing a fire in an ion exchange resin column in a Hot Cell. The involved worker would be protected from receiving any dose because of the heavy shielding of the Hot Cell. The maximum doses associated with this accident scenario are 0.13 rem for the co-located worker and 0.11 rem for the nearest member of the public. The risk of Latent Cancer Fatalities would be 5.2×10^{-5} (1 in 19,000) for the co-located worker and 5.5×10^{-5} (1 in 18,000) for the nearest member of the public. These doses pose a minimal health risk to co-located workers and to the public and are well below regulatory guidelines.

The proposed action would have a minimal cumulative effect on LANL. The radioactive source recovery program would produce radioactive liquid effluents, solid wastes, radioactive exposures to involved workers and some increase in onsite transportation activities that would be additive to existing LANL operations.

Potential environmental effects under the no-action alternative would include an increasing frequency of abandoned sources (representing a public radiological health threat), increasing risk of dose to the public due to a defective or ruptured source and increasing risk of theft or diversion. In the event that a member of the public is chronically exposed to a neutron source, the dose received could exceed the DOE annual limit of 100 mrem in a little over three hours.

On November 27, 1995, 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 pre-decisional draft 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 and the DOE Public Reading Room in Albuquerque. Also, local stakeholder groups were notified of the availability of the pre-decisional draft EA on November 27, 1995. Ten comment letters on the pre-decisional draft EA were received from industry, members of the public and from state agencies other than the state of New Mexico. These comments were generally in support of the proposed action. One comment letter stated that recovery of the source materials was not necessary and that simple storage would be adequate. Because of the age and degraded condition of the sources and the potential for high levels of personal exposure, it is not prudent to store these sources without recovering the radioactive materials. Another comment letter requested that the radioactive source recovery program be expanded to include radium sources. At this time, LANL is not prepared to accept radium neutron sources. All comments were addressed, as appropriate, in the Final EA. Individual response letters were prepared by LAAO for comments that were not addressed in the Final EA.

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:

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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. Copies will also be made available in the DOE Public Reading Room, located in the Atomic Museum, 20358 Wyoming Boulevard, Albuquerque, New Mexico, 87185 at (505) 845-6670.

FINDING: The United States Department of Energy finds that there would be no significant impact from proceeding with its proposal to establish a routine radioactive source recovery program 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 that analyses the source recovery program, 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 21 day of December, 1995.

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