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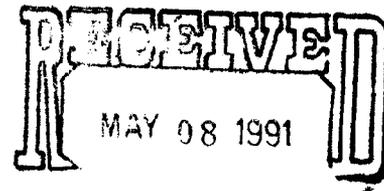
Department of Energy
Albuquerque Operations
Los Alamos Area Office
Los Alamos, New Mexico 87544

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TA 16

Judith M. Espinosa, Secretary
New Mexico Environment Department
1190 St. Francis Drive
Santa Fe, New Mexico 87503

Dear Ms. Espinosa:

The United States Department of Energy (DOE) has issued a finding of no significant impact after an Environmental Assessment was completed on the Weapons Engineering Tritium Facility at the Los Alamos National Laboratory, Los Alamos, New Mexico. Enclosed please find the final Environmental Assessment and the signed finding of no significant impacts for this operation.

Pursuant to direction given by Secretary of Energy James D. Watkins, DOE will provide states that host DOE facilities the opportunity to review the Environmental Assessment prior to DOE approval. This was accomplished as your office received the Environmental Assessment in December, 1990.

This assessment was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), and the DOE NEPA Guidelines (52 FR 47662, December 15, 1987).

If you or your office staff wish to receive further information on this project, please call Donald George of my staff at 665-5046.

Sincerely,

Jerry L. Bellows
Jerry L. Bellows
Area Manager

LESH:1DG-004

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Judith M. Espinosa

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Enclosures

cc w/enclosures:

Gedi Cibas, Program Support Bureau, NMED

cc w/o enclosures:

Connie Soden, EHD, AL

U. S. DEPARTMENT OF ENERGY
FINDING OF NO SIGNIFICANT IMPACT
WEAPONS ENGINEERING TRITIUM FACILITY
LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO

area P

TA-33
TA-16

AGENCY: U.S. DEPARTMENT OF ENERGY

ACTION: FINDING OF NO SIGNIFICANT IMPACT

SUMMARY: The Department of Energy (DOE) has prepared an Environmental Assessment (EA) for repacking tritium in the new Weapons Engineering Tritium Facility (WETF) at the Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico. Tritium repacked in small quantities is used in basic energy research performed at LANL and in weapons test devices designed and constructed at LANL but activated at the Nevada Test Site (NTS). The WETF is planned as a replacement for an existing tritium repackaging facility at LANL which has no containment or recovery capacity for either gaseous or liquid tritium wastes. These now escape into the environment. Tritium emissions and effluents from the WETF will be reduced to a few percent of those from the current facility by incorporating effective tritium capture and containment methods. These will enhance protection of human health and the environment.

In accordance with the Council on Environmental Quality (CEQ) requirements contained in 40 CFR Parts 1500-1508, the EA examined and compared the environmental impacts of the proposed action with those of the no-action alternative, which is to retain tritium repackaging in an existing facility at Technical Area (TA) 33. Based on the analyses in the EA, DOE has determined that the proposed action does not constitute a major Federal action

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significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act (NEPA) of 1969 and CEQ regulations in 40 CFR Sections 1508.18 and 1508.27. Therefore, the preparation of an Environmental Impact Statement is not required. The DOE is issuing a finding of no significant impact (FONSI).

COPIES OF THE ENVIRONMENTAL ASSESSMENT ARE AVAILABLE FROM:

Paul Schumann, Chief
Environmental Safety and Health Branch
Los Alamos Area Office
U.S. Department of Energy
Los Alamos, NM 87544
(505) 667-5288, (FTS) 857-5288

FOR FURTHER INFORMATION CONTACT:

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Forrestal Building
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585
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BACKGROUND: Tritium, supplied in small quantities, and highly purified for research projects, is crucial in the operation of ongoing DOE energy and weapons research programs conducted at LANL and NTS. The tritium is produced and packaged in large-quantity containers elsewhere in the DOE complex. Repackaging tritium to precise specifications meets exacting requirements of LANL's experiments and reduces the amount of tritium that could be released by potential accidents in test facilities.

LANL, elevation 2,200 meters (7,200 feet) above sea level, is located on 111 square kilometers (43 square miles) of land in Los Alamos County, in north-

central New Mexico. The climate is semiarid and temperate, with about 45 centimeters (18 inches) annual precipitation. The area is thinly populated, with less than 20,000 persons living in Los Alamos County.

Hydrologic studies of the LANL area show that all surface and shallow ground waters which receive aqueous discharges from LANL operations are restricted to the site. No off-site water contamination due to LANL operations has been detected. ^{→ Fucken WATS.} The source of drinking water for Los Alamos County is a deep aquifer that is isolated from the surface discharges by dry tuff and volcanic sediments some 110 to 190 meters (350 to 620 feet) deep. The normal operations at LANL result in an estimated maximum individual effective dose to a member of the public of 6.2 mrem (1988). The natural background radiation in Los Alamos is 336 mrem/year.

PROPOSED ACTION: The proposed action is to move the tritium repackaging operations to a new, expanded facility which incorporates state-of-the-art subsystems for containing and collecting tritium gas and liquids. The new facility is located behind security barriers in a more remote technical area on the LANL site (TA-16) and adjacent to operations where packaged tritium is used, thus increasing public safety and decreasing transportation of tritium components over public highways.

The most significant advances in the WETF are subsystems designed to contain and capture leaked tritium gas and tritiated waste water. All tritium packaging work will be carried out in enclosed gloveboxes provided with a flow-through atmosphere of dry nitrogen. This nitrogen gas atmosphere is

exhausted to a cleanup subsystem where any tritium that escapes from the primary containment vessels will be catalytically oxidized to tritiated water vapor and then captured on molecular sieve material before the nitrogen is exhausted to the environment. In addition, the facility will have a separate cleanup subsystem to capture any tritium that escapes from the glovebox into the laboratory room atmosphere. The room atmosphere will be redirected through a duplicate catalytic oxidizer and molecular sieve to remove tritiated water vapor before being exhausted to the environment. Because the tritium-capture subsystems are not 100 percent effective, the WETF tritium emissions are conservatively estimated at 400 Ci/year.

Floors in the WETF laboratory rooms will be wet mopped weekly during operations. About 1,040 liters/year (275 gallons/year) of industrial wastewater containing about 0.1 mCi of tritium will be generated. This water will be collected in a tank and periodically transferred to the Liquid Radioactive Waste Treatment Plant at LANL. Discharges from this treatment plant comply with requirements of a National Pollutant Discharge Elimination System (NPDES) permit even though no water is discharged offsite.

The planned maximum inventory for the WETF at any one time is 250 grams of tritium. During normal operations, 24 grams or less will be in process in the glovebox line at any time.

Operations at the existing tritium repackaging facility were suspended in October 1990. A decision on decontamination, decommissioning (D&D), and reuse of the facility will be made during the next 1 to 2 years. Environmental

impacts of the D&D processes plus new operations proposed for the facility will be assessed as a part of that decisionmaking process.

ALTERNATIVES CONSIDERED: The environmental consequences of the no-action alternative to repackage tritium in the existing TA-33 facility were analyzed in the EA. Other alternatives considered but dismissed were (1) an addition to an existing facility at another technical area at LANL, (2) renovation of the existing facility, and (3) relocation of the tritium-packaging capability to another DOE site. Alternative 1 was dismissed because the identified site is immediately adjacent to the Los Alamos townsite and in a canyon bottom. Alternative 2 is closer to a populated area than the proposed site and would involve suspending tritium repackaging activities and disrupting experimental schedules during renovation. Alternative 3 would increase the transportation requirements for tritium, while reducing the operational flexibility of LANL.

ENVIRONMENTAL IMPACTS: The potential environmental consequences of the proposed action and the no-action alternative were analyzed individually and cumulatively with all LANL operations. Both normal operations and abnormal events were considered. No significant environmental effects were found to be associated with normal operations of the proposed action, the WETF. The environmental consequences of tritium repackaging at the WETF would be much less than those of the no-action alternative, repackaging at the existing facility. The finding of no significant impact is based on these results, which are summarized below.

Radioactive Emissions

Projected tritium emissions from the WETF are 400 Ci/year, whereas the 10-year average of emissions from the existing facility has been 7,000 Ci/year. The cumulative impact of tritium emissions from LANL would be reduced by implementing the proposed action (WETF), as the existing facility at TA-33 has been responsible for over half the tritium released from all of LANL in recent years. Tritium emissions from LANL could be reduced from 10,200 Ci/year to about 3,600 Ci/year by implementing the proposed action.

Radiological effects of the airborne tritium emissions during normal operation were estimated for workers within the WETF, for workers at the same TA, and for the members of the public living nearest the WETF (Los Alamos and White Rock). In each case, the dose from the WETF was a few percent of that for the no-action alternative. For example, dose to a worker in a facility near the WETF could be 0.004 mrem/year whereas workers at TA-33, near the existing facility, could receive 0.2 mrem/year. The comparable dose to the nearest member of the public is 2.1×10^{-4} mrem/year due to WETF operations which corresponds to less than 1×10^{-10} added cancers per year. In comparison, the dose to the nearest member of the public due to the no-action alternative is 1.7×10^{-2} mrem/year which corresponds to less than 9×10^{-9} added cancers per year. All doses to members of the public are several orders of magnitude less than the EPA limit of 10 mrem/year through the air pathway, from all air emissions sources. The population of 203,000 persons living within 80 kilometers (50 miles) would receive 3.7×10^{-3} person-rem per year, corresponding to less than 2×10^{-6} added cancers from WETF operation. The same population would receive 5.6×10^{-1} person-rem per year, corresponding to

less than 3×10^{-4} added cancers per year from the no-action alternative. The dose and cancer risk to members of the public from overall LANL operations would be reduced, but not significantly, by implementing the proposed action because the contribution of tritium releases to the overall dose is extremely small.

Liquid Effluents

Projected industrial wastewater effluents from the WETF are projected to be 1,040 liters/year (275 gallons/year) containing 0.01 mCi tritium. This industrial waste water will be sent to the Radioactive Liquid Waste Treatment Plant. Discharges from this plant do not contaminate offsite water or any water consumed by members of the public. Industrial wastewater discharges from the TA-33 facility have been about 5,200 liters/year (1,400 gallons/year) containing 2 to 3 Ci of tritium. These discharges go to a septic tank and tile field. Again, no offsite contamination from this activity has been detected.

Solid Wastes

The proposed action and no-action alternative would produce about the same amount of low-level radioactive waste (LLW), about 3 to 6 cubic meters (100 to 200 cubic feet) per year. This would be taken to the LANL LLW storage and burial area. Molecular sieve material containing tritiated water could be returned to another DOE facility for tritium recovery.

Transportation Impacts

Relocating tritium packaging operations to the WETF would significantly decrease the transportation of tritium over public highways because many of the tritium storage, verification, and research activities are or will be located at TA-16.

Abnormal Events

Radiological effects that could be caused by abnormal events were estimated for the WETF and for the no-action alternative. All possible doses would be very small and no effects would be expected in the exposed individuals. Because the WETF will use an emergency tritium capture subsystem while the existing facility has none, and because the WETF is more distant from members of the public than is the existing facility, possible doses are much smaller for the WETF. The most probable accident, an overpressure in the glovebox that forces tritium into the laboratory, has an estimated probability of one per year. The dose to a member of the public at the site boundary could be 4.5×10^{-9} mrem for the WETF and 2.6×10^{-2} mrem for the existing facility. The most severe credible accident, a ruptured containment tank, has an estimated probability of 1 in 100,000 years. The dose from this accident to a member of the public at the site boundary could be 0.038 mrem for the WETF and 0.081 mrem for the existing facility. The dose to the nearest population group could be 67 person-rem for the WETF, which corresponds to less than 0.04 added cancers. The comparable population dose for the no-action alternative is 120 person-rem, which corresponds to 0.06 added cancers.

Cultural Resources

The area identified for the WETF was surveyed by a LANL archeological team. No intact archeological sites remain in the area.

Sensitive Habitat

The area identified for the WETF is on a mesa top and contains no floodplains or wetlands. According to surveys conducted by LANL biologists of the LANL site as a whole, and the WETF area in particular, no threatened and endangered species, nor their critical habitats, occur in the area.

DETERMINATION: Based on the findings of the EA, the DOE has determined that the proposed action, to relocate the existing tritium repackaging operations in a new facility at LANL, does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. In view of this, a finding of no significant impact (FONSI) is made. Accordingly, an environmental impact statement (EIS) is not required.

Issued at Washington, D.C., this 22^d day of March, 1991.


Peter N. Brush
Acting Assistant Secretary
Environment, Safety and Health