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National Nuclear Security Administration
Washington, DC 20585

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Dear Interested Party:

The Record of Decision for the *Final Environmental Impact Statement for the Proposed Relocation of Technical Area 18 Capabilities and Materials at the Los Alamos National Laboratory (TA-18 Relocation EIS)* [DOE/EIS-0319] is attached for your information. The Record of Decision announces the National Nuclear Security Administration's (NNSA) decision to relocate Security Category I/II missions and related materials from TA-18 at the Los Alamos National Laboratory in New Mexico to the Device Assembly Facility at the Nevada Test Site.

The NNSA is responsible for providing the Nation with nuclear weapons, ensuring the safety and reliability of those nuclear weapons, and supporting programs that reduce global nuclear proliferation. These missions are accomplished with a core team of highly trained nuclear experts. One of the major training facilities for these personnel is located at TA-18. Principal Technical Area 18 activities include experiments that support operational nuclear criticality safety programs, development of special nuclear material detection systems for homeland security and nuclear non-proliferation activities, and training for nuclear material handlers, safety professionals, nuclear emergency responders, and International Atomic Energy Agency personnel.

Though TA-18 is judged to be secure by DOE's independent inspection office, its facilities are from 30 to more than 50 years old. Additionally, the Technical Area 18 facilities are located in a canyon which is difficult to secure, resulting in increasingly high costs to maintain a security Category I infrastructure. In order to maintain the important capabilities currently provided at TA-18 in a manner that reduces the long-term costs for safeguards and security, the NNSA prepared the *TA-18 Relocation EIS* to evaluate alternatives that would relocate the TA-18 operational capabilities and materials to new locations.

Based on the information and analysis contained in the *TA-18 Relocation EIS*, and other factors, such as programmatic and technical risk, construction requirements, and cost, the NNSA has decided to relocate TA-18 Security Category I/II missions and related materials to the Device Assembly Facility at the Nevada Test Site. At this time, the NNSA is not issuing a decision regarding the location of TA-18 Security Category III/IV missions and activities within LANL; however, additional studies will be performed and a separate Record of Decision will be issued sometime in 2003.

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If you would like further information or additional copies, please contact me at 202-586-5484. We appreciate your participation in this decision-making process.

Sincerely,

James J. Rose
TA-18 Relocation EIS
Document Manager

Attachment: As stated

[6450-01-P]

DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION
RECORD OF DECISION FOR THE FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE RELOCATION OF TECHNICAL AREA 18 CAPABILITIES AND MATERIALS AT THE LOS ALAMOS NATIONAL LABORATORY

AGENCY: Department of Energy, National Nuclear Security Administration

ACTION: Record of Decision

SUMMARY: The Department of Energy's (DOE) National Nuclear Security Administration (NNSA) is issuing this Record of Decision on the proposed relocation of Technical Area 18 (TA-18) capabilities and materials at the Los Alamos National Laboratory in the State of New Mexico. This Record of Decision is based on the information and analysis contained in the *TA-18 Relocation Environmental Impact Statement* (DOE/EIS -319), and other factors, such as programmatic and technical risk, construction requirements, and cost. NNSA has decided to implement the Preferred Alternative, which would relocate Security Category I/II missions and related materials to the Device Assembly Facility at the Nevada Test Site. This alternative includes facility modification and transportation of special nuclear materials and equipment required to support Security Category I/II missions. Regarding Security Category III/IV alternatives, NNSA has determined that additional studies are required and thus is not making a decision on this set of missions.

FOR FURTHER INFORMATION CONTACT: For further information on the TA-18 Relocation EIS or Record of Decision, or to receive a copy of the *TA-18 Relocation EIS*, contact: James J. Rose, Document Manager, National Nuclear Security Administration (NA-53), U.S.

Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585, (202) 586-5484. For information on the DOE National Environmental Policy Act (NEPA) process, contact: Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (EH-42), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585, (205) 586-4600, or leave a message at (800) 472-2756.

SUPPLEMENTARY INFORMATION:

BACKGROUND. The DOE's NNSA prepared this Record of Decision pursuant to the regulations of the Council on Environmental Quality for implementing NEPA (40 CFR Parts 1500-1508) and DOE's NEPA Implementing Procedures (10 CFR Part 1021). This Record of Decision is based, in part, on DOE's *TA-18 Relocation EIS* (DOE/EIS-319).

NNSA is responsible for providing the Nation with nuclear weapons, ensuring the safety and reliability of those nuclear weapons, and supporting programs that reduce global proliferation. These missions are accomplished with a core team of highly trained nuclear experts. One of the major training facilities for those personnel is located at Technical Area 18 (TA-18) within the Los Alamos National Laboratory (LANL), Los Alamos, New Mexico. The operations at TA-18 enable DOE and other government personnel to gain knowledge and expertise in advanced nuclear technologies that support the following: (1) nuclear materials management and criticality safety; (2) emergency response in support of counter-terrorism activities; (3) safeguards and arms control in support of domestic and international programs to control excess nuclear materials; and (4) criticality experiments in support of Stockpile Stewardship and other programs. Criticality experiments involve systems of fissile material(s), called critical

assemblies, which are designed to reach a condition of nuclear criticality in a controlled manner. The capability to conduct criticality experiments also includes development of nuclear instruments, measurement and evaluation of integral cross sections, accident simulation, dosimetry, and the detection and characterization of nuclear material. A critical assembly is a machine used to manipulate a mass of fissile material in a specific geometry and composition. The critical assembly machines proposed for relocation are the Flattop, Planet, Comet, and Godiva, which are currently located in TA-18 facilities called CASAs (Critical Assembly Storage Areas).

NNSA uses a cost-effective, graded approach to provide safeguards and security for special nuclear materials (SNM). Quantities of SNM stored at each site are categorized into Security Categories I, II, III, and IV with the greater quantities included under Security Categories I/II and lesser quantities included in descending order under Security Categories III/IV. Areas supporting Security Category I/II activities are protected by a Perimeter Intrusion Detection and Assessment System (PIDAS) designed to detect, control, or deny access to these areas. Each CASA at TA-18 is surrounded by a PIDAS.

TA-18 operations at LANL include Security Category I/II, as well as Security Category III/IV activities. Security Category I/II activities are associated primarily with the operation of the Flattop, Planet, Comet and Godiva critical assembly machines. Security Category III/IV activities are associated with various experiments and storage involving small quantities of SNM and the operation of the critical assembly machine.

Though TA-18 is judged to be secure by DOE's independent inspection office, its buildings and infrastructure are from 30 to more than 50 years old and are increasingly expensive to maintain and operate. Additionally, the TA-18 operations are located in a canyon which is difficult to secure, resulting in increasingly high costs to maintain a security infrastructure for the special nuclear materials (SNM) used and stored at the site. NNSA wishes to maintain the important capabilities currently provided at TA-18 in a manner that reduces the long-term costs for safeguards and security. NNSA proposes to accomplish this by relocating the TA-18 capabilities and materials to a new location.

ALTERNATIVES CONSIDERED. NNSA evaluated the environmental impacts associated with the proposed action of relocating TA-18 capabilities and materials associated with Security Category I/II activities to a new location. Location alternatives for Security Category I/II activities and materials include the following DOE sites: (1) a different site at LANL at Los Alamos, New Mexico; (2) Sandia National Laboratories at Albuquerque, New Mexico (SNL/NM); (3) Nevada Test Site (NTS) near Las Vegas, Nevada; and (4) Argonne National Laboratory-West (ANL-W) near Idaho Falls, Idaho.

In conjunction with the relocation of Security Category I/II activities, NNSA also evaluated the environmental impacts associated with the relocation of TA-18 Security Category III/IV activities, including SHEBA, within LANL, and considered two alternatives not involving relocation: the No Action Alternative and the TA-18 Upgrade Alternative. These alternatives are described in greater detail below.

No Action Alternative. This alternative would maintain the current missions at TA-18 as described for the Expanded Operations Alternative in the *LANL Site-Wide Environmental Impact Statement (LANL SWEIS)* and the associated Record of Decision (64 FR 50797). Under the No Action Alternative, the operations conducted at TA-18 would continue at the level described in the *LANL SWEIS* with no major construction, facility modifications, or changes to the infrastructure associated with buildings or safeguards and security. Current SNM inventories (all security categories), as well as the criticality experiments machines, would remain in place. The No Action Alternative may limit NNSA's ability to support future TA-18 mission requirements.

TA-18 Upgrade Alternative. This alternative would upgrade the buildings, infrastructure and security infrastructure of existing TA-18 facilities to continue housing these TA-18 operations at their present location at LANL. Current SNM inventories (all security categories), as well as the criticality experiments machines, would remain in place.

Under the Upgrade Alternative, some construction activities would be necessary. New construction would consist of: (1) a new one-story office and laboratory building, (2) a new one-story control room, (3) a new one-story pre-engineered metal storage building, and (4) a new storage vault. In addition, some modifications to existing facilities would also be needed. The modifications include: installation of high-efficiency particulate air filters in conjunction with negative pressurization of the CASAs; paving and surfacing improvements; replacement of potable and fire-protection water systems; replacement of the sanitary sewage system; storm-water management improvements; site grading; additions or replacements of heating, ventilating,

and air conditioning; power distribution and monitoring; lightning protection; grounding; surge suppression; PIDAS upgrades; and physical security enhancements.

LANL New Facility Alternative. This alternative would locate the TA-18 Security Category I/II activities in a new building to be constructed near the Plutonium Facility 4 (PF-4) at LANL's TA-55. The new Security Category I/II operations building would consist of above-grade structures that would house support operations and below-grade structures that would house criticality assembly areas and SNM vaults. A low-scatter bay would be located in a new pre-engineered-type building above ground. Access to the facility would be through a new Protected Area Access Control Building. The PF-4 PIDAS would be enlarged to encompass this new facility.

SNL/NM Alternative. This alternative would locate the TA-18 Security Category I/II operations within a new Security Category I/II facility to be constructed within TA-V at SNL/NM. The new Security Category I/II operations building would include nuclear material storage vaults, and critical assembly facilities. The alternative would also involve the modification and renovation of 10 existing aboveground buildings within SNL/NM's TA-V area. Structures that would be located in the aboveground renovations would include emergency response staging and maintenance, electronics and machine shops, instrumentation laboratory, critical assembly control rooms and warehouse, a low-scatter facility, waste management storage areas, and radioactive-source storage areas.

NTS Alternative. This alternative would locate the TA-18 Security Category I/II operations in

As stated in the TA-18 Relocation Final EIS, the preferred alternative for Security Category III/IV activities is that those activities would remain at LANL. However, NNSA is currently pursuing additional studies and will issue a separate record of decision regarding these Security Category III/IV activities.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE. Ordinarily, the environmentally preferable alternative is the alternative that causes the least impact to the environment; it is also the alternative that best protects, preserves, and enhances historic, cultural, and natural resources. The analyses indicated that there would be very little difference in environmental impacts among the alternatives analyzed and also that the impacts would be small. After considering impacts to each resource area by alternative, NNSA has identified the ANL-W Alternative as having relatively the fewest impacts to the environment; it is also the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

ENVIRONMENTAL IMPACTS OF ALTERNATIVES. NNSA weighed environmental impacts as one factor in its decision-making, analyzing existing environmental impacts and the potential impacts that might occur for each reasonable alternative including the irreversible or irretrievable commitments of resources.

Land Use. Differences among alternatives are primarily associated with facility construction. The only alternative with no new construction is the No Action Alternative. Potential land disturbance would range from 0.2 hectares (at TA-18; Upgrade Alternative) to 1.8 hectares (LANL New Facility and SNL/NM alternatives). In addition, 0.08 hectares of land could be

disturbed at LANL's TA-39 for the relocation of SHEBA and 1.6 hectares of land could be disturbed for the relocation of other Security Category III/IV activities at LANL's TA-55. No land use change would result from implementing any of the alternatives.

Transportation. Except for the No Action Alternative and the TA-18 Upgrade Alternative, all other site relocation alternatives would require the transportation of equipment and materials. Such transportation would involve the relocation of approximately 2.4 metric tons (2.6 tons) of special nuclear material (SNM), and approximately 10 metric tons (11 tons) of natural and depleted uranium and thorium, as well as support equipment, some of which would be radioactively contaminated. For each of the relocation alternatives, the environmental impacts and potential risks of such transportation would be small, less than one fatality per 10,000 years under normal and accident conditions. The potential transportation risks would differ between the relocation alternatives primarily as a function of the transportation distance. Based on distance, the ANL-W Alternative would have the highest potential impact, the NTS Alternative the second-highest, the SNL/NM Alternative the third-highest, and the LANL New Facility Alternative the least risk (compared to the No Action and TA-18 Upgrade Alternatives). There is little variation in impacts between alternatives because effects are small, and any projected increased transport of radioactive materials is not enough to make a significant change.

Socioeconomics. Employment changes would also be very small (around 20 new hires) for the alternatives involving the relocation of TA-18 activities to new sites (SNL/NM, NTS, or ANL-W), while the overall operations workforce at LANL would remain the same regardless (TA-18, TA-55 or TA-39). Construction activities would involve temporary increases in the

workforce with a maximum peak of 300 construction workers (LANL New Facility, SNL/NM alternatives) to 120 construction workers or less for the other alternatives. The peak number of construction workers for SHEBA and other Security Category III/IV activities relocation would be less than 50. These workforce changes would have no noticeable impact on the socioeconomic conditions of the associated regions of influence.

Geology and Soils. No impacts to geology or geological conditions are expected in any of the alternatives. Proposed new facilities and renovated buildings would be evaluated, designed, and constructed in accordance with DOE Order 420.1 and sited to minimize the risk of geologic hazards. The potential exists for contaminated soils and possibly other media to be encountered during excavation and other site activities for all alternatives involving new construction. Prior to commencing ground disturbance, NNSA would survey potentially affected areas to determine the media extent and nature of any contamination and implement required remediation in accordance with the procedures established under each site's environmental restoration program.

Water Resources. Surface water would not be used to support new construction or modification of existing facilities at any of the sites considered for relocation. No impacts on surface water are expected from operations of TA-18 facilities and there would be no direct discharge of sanitary or industrial effluent to surface waters under all alternatives. Wastewater would be collected and conveyed to existing wastewater treatment facilities. Storm-water runoff from construction areas could potentially impact downstream surface water quality, although any effects on runoff quality would likely be localized around immediate points of disturbance or construction lay-down areas.

Groundwater would be required during construction for such uses as dust control and soil compaction, washing and flushing activities, and to meet the potable and sanitary needs of construction employees. It is estimated that construction activities would require from 50 thousand liters per year (ANL-W Alternative) to a maximum of 17 million liters per year (LANL New Facility, SNL/NM Alternatives) during construction. Facility operations would require approximately 6.9 million liters per year of groundwater under all alternatives. Groundwater required during the period of construction or operation should not impact regional groundwater levels or availability for any of the alternatives considered. No operational impacts on groundwater quality are expected for any of the alternatives.

Biological Resources. With the exception of the No Action Alternative and the ANL-W Alternative, construction of new facilities would impact terrestrial resources due to the loss of small amounts of native vegetation consisting of Ponderosa pine at LANL, grassland at SNL/NM, and creosote bush at NTS. Because of the small amount of land disturbance, the habitat loss would be small and potential disturbance of wildlife would be temporary. Construction activities would have no impact on existing wetlands at LANL.

Potential impact on the federally threatened desert tortoise at NTS may occur under the NTS Alternative during construction. However, due to the low population density of the desert tortoise at NTS, it is doubtful that this impact would exceed allowable losses. Operational activities would not impact terrestrial resources at any of the alternative sites.

Air Quality. Non-radioactive hazardous air pollutants would not be expected to degrade air

quality or affect human health under any of the alternatives. Small quantities of criteria and toxic air pollutants would be generated from the operation of emergency diesel generators during testing and other routine activities at all alternative relocation sites. The resulting concentrations would be well below ambient quality standards at all alternative relocation sites with the exception of LANL's TA-55 where the maximum ground-level concentration of nitrogen dioxide could exceed the 24-hour standard at the nearest public access road (Pajarito road). Short-term concentrations on public roads from testing of the emergency diesel generators at TA-55 would be controlled by appropriate design of the generator stack or other appropriate engineering or management measures including limitations on testing the diesel generators to favorable meteorological conditions.

Construction of new buildings and modifications of existing buildings at the alternative sites would result in a temporary increase in air quality impacts from construction equipment, trucks, and employee vehicles. Although emissions would vary with the magnitude of the construction activities at each alternative relocation site the maximum ground-level concentrations would be well below the ambient air quality standards at all alternative sites with the exception of LANL's TA-55 where the short-term concentrations of total suspended particles and particulate matter could exceed standards at public receptors adjacent to the site. Construction air quality impacts at the site would be mitigated by implementing standard dust-control practices as required by the state air quality control agency.

Visual Resources. Activities related to the construction of new buildings and building modifications at the alternative relocation sites would result in a temporary change to the visual

appearance of the sites due to the presence of construction equipment and possible increased dust. The overall appearance of the existing landscape would not change under any of the alternatives.

Noise. Construction of new buildings and modifications of existing buildings would result in some temporary increase in noise levels near the area from construction equipment and activities. However, there would be no change in noise levels due to normal TA-18 operations under all alternatives.

Site Infrastructure. The projected demands on key infrastructure resources associated with site construction and building modification are well within the infrastructure capabilities at each of the alternative sites. It is also projected that the existing infrastructure resources would be adequate to support the proposed TA-18 activities over 25 years for all alternative sites.

Cultural Resources. No impact to known prehistoric, historic, Native American, or paleontological resources is expected from construction or operational activities under all site alternatives. Because most of the proposed new construction would occur in previously disturbed land, it is unlikely that construction of new facilities at any of the sites could disturb previously unknown prehistoric, Native American or paleontological resources. Consultation with the State Historic Preservation Officers and tribal representatives would be conducted in accordance with site cultural resource management plans.

Waste Management. Construction of new buildings and modifications of existing buildings at

The annual average dose to a worker involved in TA-18 activities would be the same under all alternatives and is estimated to be 100 millirem per year with a corresponding risk of developing latent cancer fatality of 4×10^{-5} per year. There would be a one-time dose to the workers of 2.3 person-rem from SNM handling activities that would be transported from TA-18 to alternative relocation sites (i.e., LANL TA-55, SNL/NM, NTS, and ANL-W). SHEBA relocation would also incur a one-time dose to workers of 0.02 person-rem.

Facility Accidents. The accident analyses considered a wide spectrum of potential operational accident scenarios including uncontrolled reactivity insertion, inadvertent criticality, fire, explosion (i.e., hydrogen detonation), and earthquake, covering both the range of TA-18 activities and the radioactive material at risk. The accident scenarios chosen for the evaluation bound the impacts of all reasonably foreseeable accidents that could occur at existing or relocated TA-18 facilities. The accident risks were estimated in terms of both the frequency of the event and the consequences of such event. The risk of an accident is defined as the product of the accident frequency and the associated consequences to the population within 80 kilometers. The highest potential annual risk of excess latent fatalities among the population within 80 kilometers would be less than 5.1×10^{-5} (i.e., about one chance in 19,000 per year of a latent cancer fatality), for the bounding accident analyzed. The No Action Alternative, and specifically SHEBA operations, would produce the highest potential accident impact, primarily due to the design of SHEBA. The potential annual risk of excess latent cancer fatalities among the population at the alternative sites ranges from 7.7×10^{-10} (NTS Alternative) to 2.2×10^{-7} (SNL/NM Alternative).

There would be no hazardous chemicals or explosives used or stored at existing and relocated TA-18 facilities, other than minor industrial quantities, that would impact workers or the public under accident conditions.

Environmental Justice. Based on the analysis of all resource areas and demographic information on low-income and minority populations, NNSA does not expect any environmental related issues (i.e., the projected impacts are not disproportionately high and adverse for minority or low income populations) from TA-18 activities under all alternatives.

COMMENTS ON THE FINAL EIS. NNSA distributed approximately twelve hundred copies of the Final EIS for review and to date, has received only two comments on the EIS. Both individuals were concerned that the relocation of the TA-18 missions would be a threat to national security through the loss of existing resources presently located at LANL. Both individuals indicated that these resources, especially experienced personnel, had been built up over a number of years and would not be present at another location.

OTHER DECISION FACTORS. In assessing the alternatives for Security Category I/II missions, the NNSA considered other key factors such as programmatic impacts, construction risk, security concerns and overall cost.

Programmatic Risk. Due to the importance of the TA-18 missions in the Nation's overall security posture, the potential risk of programmatic impacts were assessed by reviewing the ability for each alternative to meet programmatic requirements and to determine the degree of

synergy each option provided the mission set. While all alternatives met the basic program requirements, it was determined that the LANL New Facility and NTS Alternatives were more advantageous than SNL and ANL-W for minimizing programmatic risk to Security Category I/II activities. First, LANL New Facility and NTS offered improved security and operating flexibility that would allow for the accomplishment of programmatic work for the next few decades due to facility age and location. Additionally, LANL and NTS provided programmatic synergy as both sites have existing mission requirements that complement the TA-18 mission set. SNL had increased programmatic risk because of the age of the facilities that would be modified under the alternative. ANL-W was determined to have the highest programmatic risk because it was no longer an NNSA site, had minimal programmatic synergy (namely through criticality research and training) and its remote location. The No Action and TA-18 Upgrade Alternatives were recognized to minimize programmatic risk initially, but would have increasing difficulty in meeting requirements, as the TA-18 facilities would reach the end of their useful life and operational/security requirements evolved.

Construction Risk. NNSA considered the risk from construction activities for the alternatives, taking into account the concepts proposed for each alternative. Factors that were examined included the age of the existing facility (if modifications would occur), the extent of modifications, and the complexity of designs. From this examination, it was determined that the NTS offered the least construction risk from the standpoint of facility age, design complexity, and extent of modifications. The NTS Alternative was based on a facility that was designed to modern safety standards as opposed to the TA-18 Upgrade, SNL, and ANL-W Alternatives that were based on refurbishing multiple buildings that approached 30-40 years in age. As with

modifying buildings of this age, NNSA has found from past experience that there is inherently more risk from discovering unknown design aspects of the buildings. Finally, the LANL New Facility Alternative, while providing the newest location for the TA-18 missions, offered moderate construction risk due to the nature of the underground design.

Costs. In reviewing the overall costs associated with relocation of the TA-18 Security Category I/II missions, it was determined that most options fell within a similar cost range when considering construction, transportation, and project management activities as well as lifecycle costs with a few exceptions. Preliminary relocation cost estimates indicated that the NTS Alternative was the lowest from a construction standpoint, but there was a potential for slightly higher lifecycle costs from operating activities due to the campaign structure proposed. Additionally, NTS as well as SNL and ANL-W had higher transportation costs associated with their alternative from off-site movement of materials than with the LANL options. The highest cost estimate was associated with the TA-18 Upgrade Alternative, driven by the current age of the TA-18 complex and uncertainties with future operational and security facility requirements. The remaining alternatives fell between these extremes, showing slight differences between them in terms of construction and lifecycle costs.

MITIGATION MEASURES. Impacts were sufficiently small to negate the need for specific mitigative actions. This is not to say that the NNSA will not implement the normal storm water run-off control measures, waste minimization programs and other such normal activities so as to minimize adverse impacts to the environment, wherever possible.

CONCLUSION. NNSA has considered environmental impacts, stakeholders concerns, risks, costs, and national policy in its decisions regarding the relocation of TA-18 Security Category I/II missions and activities and has decided to implement the preferred alternative, transfer of missions to the Device Assembly Facility at the Nevada Test Site. At this time, the NNSA does not issue a decision regarding location of TA-18 Security Category III/IV missions and activities within LANL; however, additional studies will be performed and a separate record of decision will be issued sometime in 2003.

Issued in Washington, DC, this 5 day of DECEMBER, 2002.

Linton Brooks
Acting Administrator
National Nuclear Security Administration