FINDING OF NO SIGNIFICANT IMPACT FOR THE ENVIRONMENTAL ASSESSMENT OF PROPOSED CHANGES FOR ANALYTICAL CHEMISTRY AND MATERIALS CHARACTERIZATION AT THE RADIOLOGICAL LABORATORY/UTILITY/OFFICE BUILDING, LOS ALAMOS NATIONAL LABORATORY, LOS ALAMOS, NEW MEXICO

ISSUED BY: United States Department of Energy
National Nuclear Security Administration
Los Alamos Field Office

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA) has completed the *Environmental Assessment of Proposed Changes for Analytical Chemistry and Materials Characterization at the Radiological Laboratory/Utility/Office Building, Los Alamos National Laboratory, Los Alamos, New Mexico* (EA). The EA evaluates the potential environmental impacts of the recategorization of Los Alamos National Laboratory's (LANL) Radiological Laboratory/Utility/Office Building (RLUOB) from a Radiological Facility to a Hazard Category 3 Nuclear Facility with an increased material at risk (MAR) limit of 400 grams of plutonium-239 equivalent (PuE)[1] that would allow a greater number and range of analytical chemistry and materials characterization (AC and MC) activities to be performed in RLUOB and require fewer to be performed in the Plutonium Facility, Building 4 (PF-4). The changes within RLUOB include modifying approximately 3,000 square feet of unused laboratory space by outfitting it with enclosures and AC and MC equipment. The additional capabilities in RLUOB would reduce the amount of AC and MC laboratory space needed in PF-4. Consequently, NNSA would make fewer modifications to PF-4 (a Hazard Category 2 Nuclear Facility) and perform fewer AC and MC operations at PF-4 than evaluated in the 2015 *Supplement Analysis, Chemistry and Metallurgy Research Building Replacement Project at Los Alamos National Laboratory, Los Alamos, New Mexico (CMRR SA)* (DOE/EIS-0350-SA-2).

NNSA sent a draft of the EA to the State of New Mexico, Santa Clara Pueblo, the Pueblo de Cochiti, the Pueblo of Jemez, the Pueblo de San Ildefonso, Federal and New Mexico congressional representatives, and the LANL Public Reading Room in Pojoaque. NNSA announced the availability of the draft EA in local newspapers and made the document available to the public via the internet. Comments received on the draft EA were considered in preparing the final EA.

NNSA has elected to implement the Proposed Action to convert RLUOB to a Hazard Category 3 Nuclear Facility with a 400-gram PuE limit on MAR. Based on the analysis in the EA, NNSA has determined that the impacts of implementing the Proposed Action are not significant. Further, NNSA has determined that this is not a major Federal action significantly affecting the quality of the human environment, and thus, does not require the preparation of an environmental impact statement.

[1] For some facilities, the exact quantities of MAR, as well as the isotopic composition of some forms of plutonium, are sensitive from a security perspective. Many safety analyses have adopted the strategy of using a convenient surrogate, plutonium-239 equivalents or PuE, for the actual quantities, forms, and isotopic composition of the materials. PuE refers to quantities of different radionuclides on a common health-risk basis. The mass or radioactivity of other radionuclides is expressed in terms of the amount of plutonium-239 that would result in the same committed effective dose upon inhalation.

SUPPLEMENTAL INFORMATION:

This EA was prepared because the NNSA has a need for enduring AC and MC capabilities at the LANL. NNSA identified the potential to recategorize RLUOB from a Radiological Facility to a Hazard Category 3 Nuclear Facility with an increased MAR limit of 400 grams PuE (15 percent of the 2,610 grams of PuE allowed in a Hazard Category 3 Nuclear Facility), allowing certain laboratory capabilities previously planned for PF-4 to be installed in RLUOB. Fewer modifications for AC and MC operations would be required in PF-4, while additional modifications would be made to RLUOB. Modifications to RLUOB and PF-4 would not require changes to the structure of either facility. NNSA therefore prepared an EA to evaluate:

(1) a Proposed Action Alternative for the recategorization of RLUOB to a MAR-limited Hazard Category 3 Nuclear Facility, with more AC and MC operations at RLUOB and fewer in PF-4 than those evaluated in the *2015 CMRR SA*; and

(2) a No Action Alternative that maintains RLUOB as a Radiological Facility as evaluated in the *2015 CMRR SA.*

Environmental Impacts

To evaluate the potential environmental consequences, a screening analysis was performed on all resource areas. For the following resource areas, there were no environmental impacts or the affects were determined to be minimal and were not evaluated in detail: land use, geology and soils, water resources, biological resources, cultural resources, air quality and climate, visual resources and noise, infrastructure, and socioeconomics. The resource areas of public interest (i.e., human health, facility accidents, waste management, transportation, and environmental justice) were evaluated in more detail in this EA. Information from the analyses is summarized below:

- Under both alternatives, no radiation doses or risks are expected among members of the public due to modifications at RLUOB and PF-4. The radiation doses received by members of the public during operations would be compliant with regulatory requirements and slightly smaller under the Proposed Action Alternative than under the No Action Alternative. Under both alternatives, no latent cancer fatalities (LCFs) would be expected among the population within 50 miles of RLUOB or PF-4. The annual risk of a maximally exposed individual (MEI) sustaining an LCF is about 5×10^{-8} (1 chance in 20 million) under the Proposed Action Alternative and 1×10^{-7} (1 chance in 10 million) under the No Action Alternative. The average annual risk of an individual in the population within 50 miles of RLUOB or PF-4 developing an LCF is about 1×10^{-9} (1 chance in 1 billion). All radiation doses to members of the public would be far smaller than the radiation doses received from natural background radiation.

- Under both alternatives, workers at these facilities (involved workers) would receive radiation exposures during facility modifications, arising primarily from activities at PF-4. Doses received by an average involved worker would be much less than DOE's dose limit in 10 CFR Part 835 for radiation workers of 5,000 millirem in a year, and less than the administrative dose limit for LANL activities of 500 millirem in a year. The annual average individual dose received by these workers (300 millirem) would be approximately the same under both alternatives. The collective dose received by involved workers for PF-4 modifications would be about 200 person-rem under the Proposed Action Alternative. Under the No Action Alternative, the collective worker dose would be higher (253 person-rem) because more facility modifications would involve radioactively contaminated equipment in PF-4. No LCFs are expected among the involved worker population under either alternative (calculated values are 0.2 LCF or less).

- Under both alternatives, an average involved worker at PF-4 would receive an annual dose of about 170 millirem during operations while an average involved worker at RLUOB would

receive an annual dose of about 10 millirem. At both facilities, the doses received by an average involved worker are much less than DOE's dose limit for radiation workers of 5,000 millirem in a year, and less than LANL's administrative dose limit of 500 millirem in a year. The collective annual radiation dose received by involved workers during operations would be smaller under the Proposed Action Alternative than that under the No Action Alternative (9.5 versus 11 person-rem). No LCFs from the annual radiation exposure would be expected among the involved workers under either alternative (calculated values are 7×10^{-3} or less).

- Neither alternative would materially change risks from potential accidents at PF-4, because the PF-4 MAR and the types of accidents that could occur would not change under either alternative. Accident risks at RLUOB could increase under the Proposed Action Alternative relative to the No Action Alternative, but the risks under both alternatives would be small. None of the evaluated accidents under either alternative would result in an LCF in the population within 50 miles of RLUOB. Similarly, the potential risk of an LCF to an MEI or a noninvolved worker from the accidents evaluated under either alternative would be less than 1 in 1 million. The impacts of an intentional destructive act at RLUOB would be bounded by the impacts analyzed for accidents.

- Modifications to RLUOB and PF-4 would generate transuranic (TRU) waste,[2] low-level radioactive waste (LLW), and mixed low-level radioactive waste (MLLW) in comparable quantities under both alternatives. Under the Proposed Action Alternative, a total of 3,030 cubic feet of TRU waste, 4,660 cubic feet of LLW, and 3,460 cubic feet of MLLW would be generated during modifications at PF-4 and RLUOB. TRU waste, LLW, and MLLW generation during modifications at PF-4 and RLUOB under the No Action Alternative would be larger by about 16 percent, 29 percent, and 57 percent, respectively. Under both alternatives, AC and MC operations would (conservatively) annually generate about 2,370 cubic feet of TRU waste, 71,280 cubic feet of LLW, and 700 cubic feet of MLLW. Facility modifications and AC and MC operations would also generate small quantities of hazardous (or other chemical) waste, nonhazardous waste, and sanitary waste.

- Under both alternatives, TRU waste from facility modifications and operations would be safely stored pending shipment to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. TRU storage capacity exists at LANL; however, depending on the quantities of TRU wastes generated from all LANL activities and the storage time required, temporary augmentation of LANL's TRU waste storage capacity may be needed. Under the Proposed Action and No Action Alternatives, the TRU waste quantities would represent about 0.4 percent and 0.5 percent, respectively, of the WIPP unsubscribed disposal capacity for contact-handled TRU waste.[3] Under both alternatives, LLW, MLLW, and chemical waste generated from facility modifications and AC and MC operations would be shipped to offsite treatment or disposal facilities. Nonhazardous waste would be shipped to offsite facilities for recycle or disposal. Ample offsite treatment or disposal capacity exists for all wastes.

- Under both alternatives, transport of radioactive waste from facility modifications and operations to offsite facilities would not result in an LCF among the transport crew or populations along the transport route. Assuming an individual member of the public was exposed under incident-free transport conditions to radiation emitted from all facility modifications radioactive waste shipments, that individual would sustain under both alternatives a maximum risk of about 3×10^{-9}, or 1 chance in about 330 million of an LCF and for radioactive waste shipments from operations

[2] Quantities of TRU waste identified in this analysis include mixed TRU waste.

[3] Unsubscribed disposal capacity is a planning number representing space available in WIPP after accounting for TRU waste inventories that WIPP has included in its disposal planning. Contact-handled waste is waste with a package surface dose rate of less than 200 millirem per hour.

an annual risk of about 8×10^{-9}, or 1 chance in about 125 million of an LCF. The maximum reasonably foreseeable accident would be the same for transport of radioactive waste from facility modifications or operations; assuming a maximum reasonably foreseeable accident occurred (one with an annual probability larger than 1 in 10 million), no LCFs would be expected among the population affected by the accident, and the risk to an MEI would be about 5×10^{-6}, or 1 chance in 200,000 of an LCF.

- No public dose from facility modifications is expected under either alternative so there is no potential for disproportionate effects on minority or low-income populations. Under both alternatives, radioactive emissions to the air from AC and MC operations would result in no disproportionately high and adverse effects on minorities or low-income populations within 50 miles of RLUOB or PF-4. Annual radiation doses to a hypothetical individual located at the nearest boundary of the Pueblo de San Ildefonso or Santa Clara Pueblo would be smaller than the doses calculated for the MEI, who is located much closer to RLUOB or PF-4 than the pueblo boundaries. Thus, there would be no disproportionately high and adverse effects on the hypothetical maximally exposed Native American individuals.
- The actions evaluated in this EA would produce little or no impacts; therefore, the actions evaluated in this EA would not substantially contribute to cumulative impacts.

EA EXTERNAL REVIEW AND COMMENT:

NNSA made the draft EA available for review by distributing it to the State of New Mexico, the four Accord Pueblos (Santa Clara Pueblo, the Pueblo de Cochiti, the Pueblo of Jemez, and Pueblo de San Ildefonso), and the LANL Public Reading Room, located at 94 Cities of Gold Road, Pojoaque, New Mexico, and by posting it on the DOE National Environmental Policy Act (NEPA) website during a 60-day public comment period. NNSA announced the availability of the draft EA for review in newspapers in the vicinity of LANL (the Los Alamos Daily Post, the Los Alamos Monitor, the Albuquerque Journal North, and the Santa Fe New Mexican). Comments were received from 43 individuals or organizations. Comments included objections to pit production or expansion of pit production; concerns about LANL safety, including seismic safety of RLUOB; and opinions that the NEPA analysis was not adequate and was a case of segmentation.[4] The final EA includes the comments received on the draft EA, as well as NNSA's responses. NNSA considered all comments on the draft EA and made appropriate changes in preparing the final EA.

[4] Segmentation can occur when an action is broken down into small parts in order to avoid the appearance of significance of the total action. An action can be too narrowly defined, minimizing potential impacts in an effort to avoid a higher level of NEPA documentation.

DETERMINATION:

Based on the evaluation presented in the final EA, NNSA has determined there would be no significant impacts from proceeding with the Proposed Action. Recategorizing RLUOB to a Hazard Category 3 Nuclear Facility and performing a larger number of AC and MC operations within RLUOB and fewer in PF-4 entail minor impacts and low risks, and do not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. NNSA therefore approves this Finding of No Significant Impact pursuant to NEPA (42 U.S.C. 4321 et seq.), the Council of Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500), DOE NEPA Implementing Procedures (10 CFR 1021), and the NNSA NEPA Compliance Program (NAP-451.1). No environmental impact statement is required for this proposal.

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