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SUPPLEMENTARY INFORMATION:

I. Background

The Storage and Disposition PEIS evaluated the potential environmental consequences of alternative strategies for the long-term storage of weapons-usable plutonium and highly enriched uranium and the disposition of weapons-usable plutonium that has been or may be declared surplus to national security needs. As part of this evaluation, the Storage and Disposition PEIS analyzed the environmental impacts of fabricating lead assemblies (and some initial MOX batch assemblies) in existing facilities in Europe in the event that it would be necessary to begin production more quickly than could be accomplished in the United States. The fabrication of lead assemblies (small quantities of nuclear fuel used by a commercial nuclear power plant to confirm that a new fuel design will perform safely and predictably) involves the same basic process as full-scale fabrication of MOX fuel and is required to support Nuclear Regulatory Commission (NRC) licensing activities and fuel qualification efforts. The Storage and Disposition PEIS evaluated transport of plutonium oxide from a storage facility at an existing DOE site to a U.S. port (Sunny Point, NC); port handling at the U.S. port; ocean transport to the European ports of Barrows, United Kingdom, and Cherbourg, France; ocean transport of MOX fuel back to the United States; and safe, secure trailer (SST) transport of MOX fuel from the U.S. port to either an existing commercial reactor site or a storage site in the United States. The shipping schedule projected two shipments of plutonium oxide per year and a maximum of four shipments of fresh (unirradiated) MOX fuel assemblies per year. The Storage and Disposition PEIS also discussed the potential effect of ocean transport on the global commons.

Although the Storage and Disposition PEIS indicated that fabrication in Europe, if it occurred at all, would only be an interim measure, the PEIS analysis included not only the annual transportation impacts of shipments to and from Europe, but also the overall transportation impacts of performing all fuel fabrication work for the entire 50-metric-ton surplus plutonium inventory

in Europe. These analyses indicate that total transportation fatalities resulting from both radiological and nonradiological risk to the public and workers for both routine and accident conditions associated with European MOX fuel fabrication for the entire inventory would range from 1.69 to 4.62 fatalities, depending on the hypothetical one-way distance to be traveled (*i.e.*, 1,000 km to 4,000 km). Port handling impacts were also analyzed in the PEIS. The analysis determined that annual accident risks from exporting two shipments of plutonium oxide and importing four shipments of MOX fuel would not result in any latent cancer fatalities (LCFs) among workers or the general public. The analysis also indicates that the probability that these shipments would be involved in a maritime accident of sufficient severity to cause release of radioactive materials resulting in catastrophic consequences would be extremely small (on the order of 1.0×10^{-7} yr to 1.0×10^{-8} yr).

The ROD for the Storage and Disposition PEIS, issued on January 21, 1997 (62 FR 3014), outlined DOE's decision to pursue a hybrid disposition strategy. This strategy allowed for both the immobilization of some (and potentially all) of the surplus plutonium and the fabrication of some of the surplus plutonium into MOX fuel to be irradiated in existing domestic, commercial reactors. The ROD made no decisions concerning lead assembly fabrication.

The environmental impacts of domestic fabrication of lead assemblies were evaluated in detail as part of the MOX fuel fabrication alternatives in the Surplus Plutonium Disposition EIS (SPD EIS) (DOE/EIS-0283, November 1999), which tiered from the Storage and Disposition PEIS. Specific facilities at five DOE sites were considered for this effort, based on site capabilities existing at that time: The Hanford Site in Washington, Idaho National Engineering and Environmental Laboratory Argonne National Laboratory West (ANL-W) facilities in Idaho, the Savannah River Site (SRS) in South Carolina, LANL in New Mexico, and Lawrence Livermore National Laboratory in California. The SPD EIS evaluated the environmental impacts of fabricating 10 fuel assemblies, irradiating up to 8 of them at existing commercial reactors (Catawba or McGuire), and performing post-irradiation examination at the Oak Ridge National Laboratory (ORNL) or ANL-W. This analysis included evaluation of transportation impacts.

The SPD EIS analyses indicate that environmental impacts from

modification and routine operation of lead assembly fabrication facilities would be small; no LCFs would be expected in the general population from the postulated bounding design basis accident; nor would there be any traffic fatalities or LCFs expected from the associated transportation.

Among other decisions made in the ROD for the SPD EIS issued on January 11, 2000, DOE selected LANL as the site for lead assembly fabrication, to be followed by irradiation in U.S. commercial reactors and post-irradiation examination of selected fuel rods at ORNL.

II. Lead Assembly Fabrication in Europe

In May 2000, DOE determined that cost and schedule impacts and other programmatic considerations precluded lead assembly fabrication at LANL, and DOE discontinued related activities at LANL. DOE/NNSA is now proposing to use U.S. surplus plutonium from LANL to fabricate up to four lead assemblies in the existing Cadarache and MELOX facilities in France, and return those lead assemblies to the United States for irradiation. Consistent with decisions in the January 2000 ROD for the SPD EIS, the lead assemblies would be irradiated at Catawba, after which selected rods from lead assemblies would be transported to ORNL for post-irradiation examination.

As part of this proposed action, up to 140 kg of plutonium oxide from LANL would be transported by truck (one shipment consisting of three SST/Safeguards Transport [SGTs])² to a U.S. military port. The plutonium oxide would then be transferred to Pacific Nuclear Transport Limited (PNTL) ships³ at the port and transported

² The SST/SGT is a specially designed component of an 18-wheel tractor-trailer vehicle. Although the details of the vehicle enhancements are classified, key characteristics are not, and include: Enhanced structural supports and a highly reliable tie-down system to protect cargo from impact; heightened thermal resistance to protect the cargo in case of a fire; deterrents to protect unauthorized removal of cargo; couriers who are armed Federal officers that receive rigorous training and are closely monitored through DOE's Personnel Assurance Program; an armored tractor to protect the crew from attack, equipped with advanced communications equipment; specially designed escort vehicles containing advanced communications and additional couriers; 24-hour-a-day real-time monitoring of the location and status of the vehicle; and stringent maintenance standards.

³ The PNTL ships are vessels specially designed to carry radioactive materials. Special safety features include: Double hulls to withstand damage from a severe collision and remain afloat; enhanced buoyancy to ensure the ship stays afloat and maintains a stable attitude even in the most extreme circumstances; duplicate navigation, communications, electrical and cooling systems; dual propulsion systems; specialized fire fighting