

across the Atlantic Ocean to Cherbourg, France (one shipment consisting of a two-ship convoy). The plutonium oxide would then be transferred to existing fabrication facilities in France (Cadarache and MELOX). After fabrication, PNTL ships would transport the lead assemblies and remaining archive and scrap material across the Atlantic Ocean back to the same U.S. military port. The lead assemblies would be transferred from the PNTL ships to SST/SGTs, and transported from the port to Catawba (one shipment consisting of four SST/SGTs). Archive (MOX pellets meeting fuel specifications) and scrap (out-of-specification MOX fuel pellets and remains from the pellet-grinding process) material would be transported from the port to LANL for storage (one shipment consisting of two SST/SGTs). Once the MOX facility becomes operational, these archive and scrap materials would be used as feed material during pellet production for MOX fuel that would be irradiated in existing U.S. commercial nuclear reactors.

DOE would obtain an export license from the NRC to transport plutonium oxide from the United States to France and would require a Certificate of Competent Authority from the Department of Transportation (based on the NRC review) for the two shipping containers (FS47 and FS65) required for this project. DOE submitted the export license application to the NRC in October 2003, which is currently under review. The application for certification of the FS47 was submitted on August 2003 and the FS65 is scheduled to be filed in December 2003.

### III. NEPA Process for Amending ROD

The Council on Environmental Quality (CEQ) regulations implementing NEPA at 40 CFR 1502.9(c) require Federal agencies to prepare a supplement to an EIS when an agency makes substantial changes in the proposed action that are relevant to environmental concerns or when there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. DOE NEPA Implementing Procedures at 10 CFR 1021.314(c) direct that when it is unclear whether a supplement to an EIS is required, an SA be prepared to assist in making that determination. DOE/ NNSA has recently prepared the *Supplement Analysis for the Fabrication of Mixed Oxide Fuel Lead Assemblies in*

*Europe* (DOE/EIS-0229-SA3) in accordance with these CEQ and DOE Procedures. The conclusions of the SA are summarized in Section IV of this amended ROD.

### IV. Summary of Impacts

The SA focuses on the potential impacts (from both routine operations and postulated accidents) of transportation of materials, including cargo-handling activities at three alternative U.S. military ports, and the effects on the global commons of ocean transport. This is because the domestic activities proposed, other than those associated with transportation, remain essentially unchanged compared to the manner in which they were analyzed in the *Storage and Disposition PEIS* and the SPD EIS.<sup>4</sup> The ports evaluated in the SA are Charleston Naval Weapons Station in South Carolina, and Yorktown Naval Weapons Station and Norfolk Naval Station in Virginia.

Based on the analyses in the SA, the proposed fabrication of lead assemblies in France, specifically, overland transportation of plutonium oxide from LANL to any of the three ports, ocean transport to France, the return shipment of fresh MOX fuel lead assemblies to the United States, and subsequent transport of the lead assemblies to Catawba and archive and scrap materials to LANL, would not result in impacts significantly different from or greater than those described in either the *Storage and Disposition PEIS* or the SPD EIS. Where there are differences in impacts, they are small changes to impacts that are themselves small. Therefore, the activities evaluated do not represent substantial changes in any proposed actions or result in any new circumstances relevant to environmental concerns.

Impacts additional to or different from those previously evaluated would result from transportation of materials to implement this activity, such as movement of archive and scrap materials from the port to LANL. Some of the origins and destinations, and hence the routes, would be different than previously evaluated, and the shipping containers, although also approved Type B packages, would be different. However, there would be fewer shipments of material than previously anticipated.

The risk to the maximally exposed individual from the postulated severe truck accident involving shipment of

plutonium oxide powder is extremely low. The risk estimated in the SA,  $1 \times 10^{-8}$  latent cancer fatality, is less than the risk estimated in the SPD EIS,  $3.5 \times 10^{-8}$  latent cancer fatality. Although more plutonium oxide powder would be available for release from the accident in the SA in the extremely unlikely event of a transportation accident involving a breach of the Type B package, there are fewer shipments, so the frequency of occurrence, hence overall risk, is lower.

Implementation of the proposed action would involve a very small increase in the use of the port facilities, with no construction at or modification of these facilities. Only three trucks (SST/SGTs) would arrive at the port to deliver the plutonium oxide to the dock where two PNTL ships, traveling in a two-ship convoy, would receive the cargo. The lead assemblies, archive, and scrap material would be transported back to the United States, also in a two-ship convoy, and would leave the port in a total of six trucks. It is not expected that the minimal additional transportation and cargo handling activities would result in any impacts to the local environment.

The SA analyzes a severe accident that involves a collision between the PNTL ship and another ship with an ensuing fire, resulting in the release of plutonium oxide powder. The SA analyzed the identical accident scenario for each of the three proposed U.S. ports, which would result in a population accident risk of  $1.2 \times 10^{-7}$  LCF for Charleston NWS,  $1.1 \times 10^{-7}$  LCF for Naval Station Norfolk, and  $3.5 \times 10^{-8}$  LCF for Yorktown NWS. The resulting individual LCF risk to the maximally exposed individual is  $3.5 \times 10^{-11}$  for Charleston NWS,  $4.3 \times 10^{-11}$  for NS Norfolk, and  $2.0 \times 10^{-11}$  for Yorktown NWS. By way of comparison, the *Storage and Disposition PEIS* reported an earlier DOE study that estimated the likelihood of a maritime accident of sufficient severity to cause significant release of radioactive material to be in the range of  $1.0 \times 10^{-8}$  to  $1.0 \times 10^{-9}$  per port call.

The probability of an accident at sea involving the PNTL is very unlikely because of the limited number of shipments (one two-ship convoy each way) as well as the redundant modern navigation systems on the ship. The probability of a significant release is further reduced because of the ruggedness of the PNTL design and the Type B packages. If plutonium oxide were released to waters of the global commons, the *Storage and Disposition PEIS* reports that plutonium oxide would dissolve very slowly, and would

equipment; satellite navigation and tracking; and highly experienced crew members.

<sup>4</sup> The only additional action needed for lead assembly fabrication in France, beyond those evaluated in previous NEPA documents, is the transport of archive and scrap materials to LANL for storage.