

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 19, 2013

**MEMORANDUM FOR:** Steven Stokes, Acting Technical Director  
**FROM:** Jonathan Plaue, DNFSB Site Representative  
**SUBJECT:** LLNL Activity Report for Week Ending July 19, 2013

On Thursday, Chairman Winokur and Board Member Sullivan, accompanied by staff members Stokes and Anderson, visited the laboratory. The group received briefings on the status of the Livermore Field Office (LFO) and the laboratory contractor's efforts to improve safety basis processes, facility infrastructure, work control, emergency management, nuclear materials and waste management, and programmatic operations. The group also walked-down a number of laboratory rooms and the loft in the Plutonium Facility.

**Emergency Management:** On Wednesday, the contractor conducted their annual full-scale emergency response exercise. The year's scenario involved an accident between vehicles transporting transuranic waste and a biological select-agent. Exercise play included response to multiple radiologically-contaminated victims and involved participation of the local hospital and deployment of the Radiological Assistance Program to survey offsite locations. The after-action report should be available in about a month.

**Nuclear Materials Management:** The Site Representative recently reviewed the inventory of nuclear materials in the Plutonium Facility. The objective of the review was to improve the understanding of the current profile of materials as the contractor develops an integrated nuclear materials management plan and LFO considers the size of the safety envelope against the program of record as part of the annual update process. The following observations are based on a snapshot of the inventory provided by contractor:

- Approximately 88 percent by elemental weight of accountable radioactive material currently in the building is categorized as No Defined Use, which means the material is either waste or there is no identified programmatic need (i.e., it is likely to be declared waste). Within this category, about 46 percent is currently contained in transuranic waste containers.
- The highest inventory room contained approximately 4.2 kg of 30-year-old fuel-grade equivalent plutonium (FGE). All of this material was contained in waste drums. Overall, most rooms (20/26) contained less than 0.5 kg FGE. The safety basis limit for laboratory rooms is 20 kg FGE.
- The largest vault inventory was 17.6 kg FGE. The reduced limit in the proposed safety basis is 175 kg FGE. Overall, the total building inventory is more than an order of magnitude less than the building limit of 700 kg FGE in the safety basis.
- The contractor currently implements the material-at-risk (MAR) limits established in the Technical Safety Requirements at a transactional level. As a result, management is not actively provided summary information indicating the status of compliance with the various limits. Further, generating an aggregate summary of MAR status is complicated by differences in the systems used to track material for safeguards purposes and MAR limits. While knowledgeable workers can obtain this aggregate information with some effort, management may need to consider evaluating MAR control processes in the event the safety envelope is reduced in the future.