

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 30, 2010

MEMORANDUM FOR: Timothy Dwyer, Technical Director
FROM: Jonathan Plaue, DNFSB Site Representative
SUBJECT: LLNL Activity Report for Week Ending July 30, 2010

Plutonium Facility: Program and facility personnel continue to develop a work package to replace a glovebox housekeeping high efficiency particulate air (HEPA) filter. This filter, which is an enclosed box type constructed of wood, was identified for replacement in December 2008 because of elevated radiation levels (the current reading is about 450 mrem per hour on contact). The replacement activity is a complex job and will involve workers standing on the top surface of the glovebox in order to access the HEPA filter's constrained location. The work permit for the activity identifies hazards associated with radiological contamination, ionizing radiation, elevated work, falling objects, and sharp tools. Respective controls include anti-contamination clothing, powered air purifying respirators, hold points, electronic dosimetry, ladder training, use of a spotter, and leather gloves. In addition, the facility manager requested the development of work instructions for this activity, in part to capture knowledge and technique for future housekeeping HEPA replacements. Work instructions are described in the Superblock Work Control Manual, which provides guidance on the applicability, format, content, and approval process. Work instructions are not considered procedures and therefore do not adhere to the Conduct of Operations Manual expectations such as assignment of a level-of-use. The Facility Safety Office has identified expectations for work instructions as a topic to be refined in a future revision to the Work Control Manual.

On July 28, 2010, personnel obtained samples and began analysis of the uranium lithium compound involved in the unexpected exothermic reaction (see weekly report dated July 23, 2010). Results to support continued recovery actions are expected next week.

Tritium Facility: On July 23, 2010, the Laboratory requested concurrence with the closure of pre-start items associated with the Tritium Grinder System readiness assessment report (see weekly report dated December 18, 2009). The closure process included a re-demonstration of operations for the readiness assessment team and verification of closure actions by facility management. Of note, the facility manager commented that the resolution for 4 issues (of 37 total) related to confirmation of tritium inventory was either indirect or acceptable, but could use improvement. Inventory verification is guided by a mix of the general use operating procedure, pre-job briefing checklist, operator aid, and batch processing record. Grinder operations are limited to less than 600 Ci of tritium in the process. The Livermore Site Office (LSO) is completing their verification process and is likely to concur shortly.

Safety Basis: On July 23, 2010, the Laboratory submitted to LSO a safety basis amendment in support of deployment of two new hydrogen fueled shuttle buses. The amendment examined the impact of the buses, a refueling station containing up to 150 kg of hydrogen, and a hydrogen tanker truck containing up to 4600 kg of hydrogen on the safety bases for each of the nuclear facilities and the transportation safety document. All of the equipment is commercial and Department of Transportation approved. The buses will be driven on all accessible roads at the lab and the refueling station is authorized to be located about 40 meters from one of the nuclear facilities. Overall, the Laboratory determined the change did not impact the Superblock or Radioactive and Hazardous Waste Management facilities. A small risk increase was identified for onsite transportation with a bounding offsite consequence of less than 2 rem. No new controls were identified. LSO expects to complete review of the amendment in August 2010.