

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 2, 2015

TO: Steven A. Stokes, Technical Director
FROM: Matthew P. Duncan, Cognizant Engineer
SUBJECT: Lawrence Livermore National Laboratory Report for June 2015

DNFSB Staff Activity: T. Hunt and M. Duncan had a teleconference with the Livermore Field Office manager and her staff to further discuss the results of the March 2015 staff review of conduct of operations and maintenance at LLNL. This review was performed by C. Beaty, T. Hunt, and outside expert D. Boyd. The review team concluded that there were no imminent safety issues, but identified numerous deficiencies and opportunities for improvement in the conduct of operations, maintenance, radiological control, and fire protection programs.

Plutonium Facility: There were two radioactive contamination events associated with bag-outs from gloveboxes containing ^{238}Pu operations in June 2013 and March 2014. As a result, facility management developed and implemented a deliberate operations plan. The plan included senior supervisory watch oversight as well as improvements for equipment, personnel, and procedures. LLNL recently resumed certain operations involving ^{238}Pu with enhanced contamination controls, personnel training, and improved glovebox performance. LLNL expects to continue to operate using the deliberate operations plan for several months. In addition, Livermore Field Office and LLNL personnel plan to perform a joint assessment in August.

Separately, a fissile material handler recently discovered a significant amount of radiological contamination on both of his gloves following work in a glovebox. The responding radiation control technicians determined there was no additional contamination in the area and that there was no significant airborne contamination.

Waste Storage Facilities: On June 16, 2015, the Cognizant Secretarial Officer for the National Nuclear Security Administration (NNSA) sent a memorandum to NNSA Field Offices entitled, *Request for Extent-of-Condition Assessment of Pipe Over-pack Container Use in National Nuclear Security Administration Nuclear Facilities*, describing a deficiency identified in DOE Standard 5506-2007, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*. Specifically, DOE Standard 5506-2007 states, "In the case of POCs [pipe overpack containers], the containers are designed in a manner that precludes their failure during expected storage area fires. ... POCs involved in storage and room fires need not be further evaluated in an accident analysis." However, a recent review by DOE and NNSA personnel discovered that experimental conditions used to justify a DR of zero for POCs during fire scenarios differ from the conditions in which POCs are currently being used at TRU waste storage sites. Specifically, POCs did not contain combustible materials during experimental testing; however, combustible material is not prohibited and is commonly stored in POCs at TRU waste storage sites. Additionally, the vent housing material used during the majority of POC testing differs from what is currently used in practice. Accordingly, the memorandum states, "NA-50 believes that, despite being an approved Technical Standard, DOE Standard 5506 should no longer be used to justify applying a DR of zero to POCs for fire scenarios." LLNL's facility manager for the Waste Storage Facilities declared a potential inadequacy in the safety analysis.