

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 22, 2015

**MEMORANDUM FOR:** S.A. Stokes, Technical Director  
**FROM:** R.K. Verhaagen and J.W. Plaué  
**SUBJECT:** Los Alamos Report for Week Ending May 22, 2015

**DNFSB Staff Activity:** On Monday, M.R. Bradisse, D.J. Campbell, P.J. Foster, and M.T. Wright conducted a teleconference with Field Office personnel to discuss questions with the safety basis for the new Transuranic Waste Facility.

**Plutonium Facility–Criticality Safety:** On Tuesday, results from a non-destructive assay (NDA) of a recently generated waste drum indicated operators had exceeded a limit in the criticality safety evaluation (CSE). During the fact-finding, facility and Field Office personnel identified several issues related to conduct of operations and implementation of criticality controls. These issues included: (1) NDA operators used an incorrect criticality safety limit approval (CSLA) for a fissile material operation they were performing; (2) multiple CSLAs exist for different waste drum operations creating operator confusion; (3) the quantity of material in a drum being moved could not be verified to be within the limits specified on the CSLA; (4) the drum being moved was not labeled with the specific contents and form of material as required; (5) assumptions used to develop an associated staging CSE may not have been conservative; and (6) assumptions in the staging CSE were not properly captured as part of the control set in the CSLA. As a result of these identified issues, facility management paused all drum movements. The Site Representatives note that these issues are very similar to the issues that contributed to the LANL Director's decision to pause operations in June 2013. Following the pause, waste handling and NDA activities were resumed through LANL processes that did not require formal readiness assessments.

**Plutonium Facility–Emergency Management:** On Thursday, facility personnel conducted their annual emergency exercise as required by DOE Order 151.1C, *Comprehensive Emergency Management System*. This year's scenario was a postulated nuclear criticality in one of the machining laboratories involving two injured workers that required extraction from the air lock. Participants noted several areas for improvement, including strengthening the procedures that guide the response of the criticality safety group. Notably, facility management requested a follow-on tabletop exercise to work through evaluation and recovery of the facility to include a discussion on the use of robots. The Site Representative observed noticeable improvement compared to last year (see 4/18/14 weekly) with the integration between facility management, fire department, and emergency management personnel, likely driven by the recent initiation of routine drills involving the Facility Incident Command. LANL expects to conduct another exercise with a different scenario at the Plutonium Facility later this year.

**Plutonium Infrastructure Strategy:** On May 19, 2015, the Field Office approved with direction the Safety Design Strategy (SDS) for upgrading the Radiological Laboratory Utility Office Building to a new Hazard Category 3 nuclear facility. The SDS will be part of the package NNSA leadership will use to soon decide whether to proceed with the upgrade effort. Field Office direction concerned the use of the DOE Order 420.1 C, *Facility Safety*, vice its predecessor document and expectations regarding hazards analysis for seismic events and natural gas explosions. Separately, the Field Office provided comments on the SDS for the PF-4 Active Confinement Ventilation System upgrade project (see 3/6/15 weekly). Notably, the Field Office directed LANL to specify DOE Order 420.1C as the code of record for the project and use the seismic design performance categories as specified in DOE-STD-1189, *Integration of Safety into the Design Process*.