

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 23, 2007

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: M. J. Merritt, DNFSB Site Representative
SUBJECT: Lawrence Livermore National Laboratory (LLNL)
Report for Week Ending March 23, 2007

DNFSB Staff Activity: Staff member J. Deplitch was at LLNL this week participating in DOE criticality safety “hands on” training for engineers meeting DOE-STD-1135-99, *Guidance for Nuclear Criticality Safety Engineer Training and Qualification*.

Critique Process: On March 21, 2007, a critique was conducted in the Plutonium Facility. The conduct of this critique represents the initial use of the new Nuclear Material Technology Program (NMTP) *Event Critiques* procedure. In the past, other less formal methods were employed to gather information on events and identify follow-up actions. This critique effectively utilized the critique procedure and gathered relevant information and assigned follow-up actions. Some weaknesses in this initial critique were the absence of visual aids (e.g., time lines, chronology, action item list) and lack of emphasis on management’s expectations regarding the criteria for immediate reporting of abnormal conditions or events while working in the facility radioactive materials area. Nonetheless, the process of conducting formal critiques in the facility is a significant improvement that will likely enhance safety in the future.

This particular critique was held to gather information related to an electrical mishap in a laboratory room in the facility. A fissile material handler (FMH) was utilizing a anti-static pad to replace a circuit board in a motor controller. The ground cable for the pad was apparently designed to fit in the ground wire connection in a standard three-wire electrical receptacle. When the FMH realized that the connection was too loose to remain in place, he then inserted the connector into a hole in the side of the receptacle box – resulting in a popping noise caused by shorting out an energized terminal on the receptacle. The FMH did not receive a shock and no external damage to the receptacle was observed. The FMH did not immediately notify his supervisor or the facility safety manager of this event that occurred in early March. The event was reported on March 19th after it became apparent that damage to the receptacle occurred due to electrical arcing. Subsequent to the critique, an occurrence report (ORPS report OAK-LLNL-LLNL-2007-0016) was filed by the facility manager as a near-miss management concern. The lessons learned from this event will be shared lab-wide.

Radiography Facility Operations: Operations were performed in the Radiography Facility this week. The operation involved radiography of a plutonium hemispherical-shell with no cladding. The performance of the receipt inspection procedure and radiography operations in the facility continues to improve. Material packaging remains an issue as the primary confinement barrier was the double plastic bag used during the glovebox bag-out process and the secondary contamination barrier was a flimsy metal container with a slip-lid top secured by tape.