

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 1, 2017

MEMORANDUM FOR: S.A. Stokes, Technical Director

FROM: J.W. Plaue

SUBJECT: Los Alamos Report for Week Ending September 1, 2017

DNFSB Staff Activity: B.K. Caleca, M.W. Dunlevy, T.J. Dwyer, D.M. Gutowski, A.R. Powers, and M.T. Wright conducted a review of the safety posture of the Plutonium Facility, including the compensatory measures and plans to remedy identified deficiencies associated with the safety systems.

Plutonium Facility–Conduct of Operations: On Tuesday, facility personnel conducted a fact-finding associated with a criticality safety event that occurred in the casting room on August 18, 2017. As discussed by attendees, the casting crew did not utilize a required use-every-time attachment to the material move procedure. As a result, the crew moved a shell into a location that already contained plutonium metal, violating the posted limit set, which allows for either metal or shells. The crew discovered this violation on August 21 while moving the shell to another location. Following discovery, the crew conducted two additional nuclear material movements that they felt were necessary for product quality and security, rather than declare a potential process deviation as required by procedure and training. They then contacted programmatic operations management for a post-job review. Notably, this casting operation had recently completed a federal readiness review and is one of the few operations where the crew that underwent readiness has not experienced personnel turnover. Additionally, this was the first shell cast in the facility in about four years and the second time that a restarted operation encountered conduct of operations issues related to the criticality safety of material movements shortly after resuming nuclear work (see 7/8/16 weekly).

On Wednesday, Plutonium Facility management briefed the NNSA Field Office on immediate actions taken, which include: conducting a formal causal analysis; pausing all casting operations; disqualifying the involved workers; requiring group leader authorization for all future moves in the casting room; mandating all group leaders observe at least three material movements; temporarily requiring a hard copy of the material move checklists for all moves; and studying longer-term improvements to the material movement process.

Plutonium Facility–Radiological Control: On Tuesday afternoon, the operations center restricted access to and suspended movement of all personnel within the facility for about two hours after radiological control technicians (RCT) found contamination on the personal protective clothing of several workers. In total, RCTs identified contamination on 11 workers associated with a job removing a limited volume chilled water supply—one worker with 1.3 k dpm alpha contamination on his knuckle and the rest with contamination on their protective clothing, mainly booties, at levels ranging from 2–10 k dpm alpha. Surveys in the affected rooms found no indications of airborne contamination; however, they revealed multiple contaminated locations, including two discarded booties found with 100 k dpm alpha. Attendees at the fact-finding identified issues with the congested and space constrained location of the job, which was adjacent to the main room exit and the hand and foot monitors. They surmised that small drops of liquid from the system, which had been previously sampled and found to be below detection levels, were actually contaminated (or became contaminated during the course of the job) and the liquid spread beyond the room as a result of the job. Management identified corrective actions associated with evaluating: the methodology for sampling liquid systems to be breached; the approach for relaxing radiological controls when breaching systems; and the design of hot job exclusion area boundaries.