

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 28, 2020

MEMORANDUM FOR: Christopher J. Roscetti, Technical Director
FROM: J.W. Plaue and D. Gutowski, Resident Inspectors
SUBJECT: Los Alamos Activity Report for Week Ending August 28, 2020

DNFSB Staff Activity: On Monday, a staff team conducted a teleconference with Triad and NNSA Field Office personnel to discuss the project to update the accident analysis calculations for the Plutonium Facility. This project will update several key models, including the leak path factor (LPF), as part of the upgrade of the safety basis to meet DOE-STD-3009-2014 and support increased production activities. The staff team focused on understanding interim review and approval milestones prior to Triad's planned final submittal in March 2022. NNSA is developing a review plan to identify their approach to reviewing interim deliverables, as well as the necessary expertise. Of note, they have preliminarily identified only one individual who has some familiarity with the software related to LPF; however, they lack the correct software versions and an appropriate computing environment.

Legacy Materials–Work Planning and Control: On Tuesday, operators opened a legacy item inside the hot cell at the Chemistry and Metallurgy Research (CMR) building. They were expecting bulk uranium-233 based on historical records, but instead found metal turnings that began to oxidize and glow. They immediately placed the item into a closed metal container. At the fact-finding held on Wednesday, participants noted that their integrated work document was inappropriate for turnings and did not include basic controls such as staging extinguishing media in the hot cell. Processing of legacy items retrieved from the Plutonium Facility vault, including this one, has resulted in several other recent problematic events (see 6/26/2020, 3/6/2020, and 7/19/2019 reports). Given these events, Plutonium Facility personnel are currently revising procedures in order to take a more conservative approach when processing legacy materials to accommodate a broader degree of unexpected material properties. We note that CMR personnel would benefit from a similar approach.

Transuranic Waste Facility: Triad personnel continue efforts to demonstrate that the firewater pumps can be credited as safety-significant (see 11/22/2019 and 5/31/2019 reports). New firewater pumps are on hand; however, they would prefer to demonstrate the acceptability of the current pumps, since pump replacement would involve a significant effort requiring a week or more of a facility firewater outage. All testing of the existing pumps so far has shown that they meet minimum flow requirements to the most distant sprinkler head; however, the pump curves have deviated substantially from the acceptance curve. Facility personnel are currently awaiting the arrival of additional equipment to perform a complete re-baselining of the pump curves with a manufacturer's representative. If this effort is successful, Triad engineering personnel believe they will be able to credit the existing pumps as safety-significant and use the new ones as spares.

Plutonium Facility–Safety Basis: On Wednesday, Triad personnel concluded they had a deficient safety basis (i.e., a positive unreviewed safety question) related to the detector operability criteria for the criticality alarm system. They entered the new information process on August 6th following questions from the NNSA Field Office and declared a potential inadequacy in the safety analysis on August 12th. They did not implement any compensatory measures given the low frequency of the situation of concern.