

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 8, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: A. Gurevitch, M. Bradisse (acting), and C. Berg (acting), Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending October 8, 2021

Potential Inadequacy of the Safety Analysis (PISA) Timeliness: When new information emerges that may challenge the safety basis, the PISA declaration is a key component to ensuring operations are conducted safely with a robust control strategy. The formal declaration of a PISA results in (1) the implementation of operational restrictions—as needed—to ensure the safety of the facility, (2) notifications to relevant stakeholders, and (3) an evaluation of the safety of the situation prior to removing any operational restrictions. Last week, NPO transmitted to CNS a letter noting concerns with PISA determination timeliness. NPO identified that PISA determinations at Pantex for discrepant as-found conditions (DAFC) were not occurring within the timeframe established by procedure. Per this procedure, DAFCs that can be brought back into compliance with the safety basis do not constitute a PISA; however, NPO identified that CNS did not document a PISA determination within the established timeframe. NPO also stated that contrary to procedure, CNS delayed PISA determinations in certain circumstances by extending the information maturity assessment (i.e., when information is declared actionable). This delay allowed for further analysis or weapon response data to ascertain the actual impact on the safety basis. As a result, NPO directed CNS to re-evaluate all open entries in their new information process and take action as needed.

Electrostatic Discharge (ESD) Event: In late August, while performing operations on a unit in a nuclear explosive cell, a production technician felt a static electrical discharge between himself and tooling encasing the unit (see 9/3/21 report). As a result of this event, CNS paused various nuclear explosive operations and began testing equipment (e.g., high explosive mats and radiation-shielding aprons) to determine the ESD source (see 9/10/21 and 9/17/21 reports). In September, CNS safety analysis engineering (SAE) declared a PISA for the ESD event and determined the PISA represented an unreviewed safety question due to an increase in the probability and consequence of both an accident and equipment malfunction. As an operational restriction—for two weapon programs, including the program on which the event occurred—CNS continues to prohibit the use of radiation-shielding aprons that can result in an ESD event.

Additionally, NPO approved last week, with no conditions of approval, a safety basis supplement (SBS) developed by CNS to allow removal of the high explosive mat from the nuclear explosive facility where the ESD event took place. CNS plans to test the conductive properties of this mat in a separate facility to assess its contribution to the incident. The SBS provides justification for the temporary exception to a technical safety requirement—requiring the presence of a high explosive mat at the workstand base in certain unit configurations—while installing a qualified replacement mat. The justification acknowledges the short duration of the activity and the presence of special tooling around the unit. To prevent impact to the unit during mat replacement, the SBS specifies compensatory measures, including the requirement for two technicians to maintain control of the mat. Further, as a precaution against electrical charge buildup, CNS recommended that technicians bond to the workstand during the activity. This week, CNS published the nuclear explosive engineering procedure to conduct these operations.