

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 25, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: C. Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending November 25, 2022

Safety Basis: In August 2021, during assembly operations, production technicians identified that the configuration of a nuclear explosive differed from the expected condition. Specifically, the production technicians noted a slight kink in one component and appropriately paused operations. CNS subsequently staged the nuclear explosive in an enhanced transportation cart—providing added protection from mechanical and electrical insults—until a path forward could be developed. This week, the applicable design agency transmitted an information engineering release providing new weapon responses for the specific unit. Given this new information, CNS safety analysis engineering (SAE) determined that the existing hazard analysis may not be bounding for the unit and declared a potential inadequacy of the safety analysis (PISA). In response to the PISA, SAE is actively developing a justification for continued operations.

Previously, SAE declared a PISA associated with a discrepancy between the existing facility crane assembly configurations within two nuclear explosive cells and the configuration analyzed within the safety basis (see 11/4/22 and 11/11/22 reports). In response, CNS engineering reevaluated the crane assemblies when supporting a lesser load (i.e., one-half of the rated load) and found they can withstand design basis seismic events in this configuration. As a result, this week, CNS updated safety basis documentation and restricted hoisting operations to the lesser load value, allowing resumption of operations in one of the cells. The second facility is currently in repair mode, undergoing replacement of its wood-framed false ceiling (see 10/7/2022 report).

Corridor Appurtenances: Nuclear explosives and special nuclear material are transported between facilities at Pantex using ramps and corridors. To prevent mechanical insults to these items during transportation operations, the technical safety requirements state that the walls and roofs of these structures shall be qualified to withstand a design basis seismic event without falling, as well as systems and equipment mounted to the structures. Earlier this month, as part of fire detection system upgrades for certain nuclear explosive bays, a subcontractor began routing conduit within the nearby ramp and corridor. Last week, CNS facility and project management discovered that appurtenances (i.e., Uni-struts) had been installed on the corridor wall as part of this stage of the construction project; however, CNS facility engineering had not evaluated and accepted these appurtenances following their installation to ensure they would meet the above technical safety requirement. Furthermore, CNS had permitted transportation operations in the corridor following installation of these appurtenances.

CNS categorized the incident as a noncompliance with the documented safety analysis. In immediate response, CNS restricted transportation operations within the affected area and paused Uni-strut installation activities. Furthermore, facility engineering walked down the construction area and found the installed appurtenances acceptable. At the event investigation, CNS facility management indicated that communication issues, as well as an incomplete understanding of the full scope of work, contributed to the incident. As a corrective action, CNS plans to develop lessons learned from the event to be shared with applicable organizations.