

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 19, 2024

TO: Katherine R. Herrera, Acting Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending January 19, 2024

Conduct of Operations: This week, CNS became aware of a nuclear explosive recently assembled at Pantex in which a certain electrical cable had been damaged. Using a trainer unit to diagnose the event cause, CNS engineering personnel asserted that production technicians inadvertently folded and creased the cable while installing a separate component, introducing a dimensional change in the cross-section of the cable. CNS believes that deformation of this cable could have been prevented by properly restraining it to preclude interference with the installation of other components. As a result, CNS weapons training personnel have provided retraining for these production technicians on proper installation of the cable and surrounding components. Additionally, CNS weapons operations personnel have briefed all technicians of this weapon program on proper techniques for handling these components. CNS human factors engineering is also planning to provide an evaluation of the operating procedure, including suggested changes that could prevent recurrence, prior to convening a causal analysis.

Incorrect Procedure Revision Used: Last week, CNS production technicians discovered that an incorrect revision of a mass properties procedure was used to conduct a weekly verification of the equipment within a nuclear explosive bay. When moving to this nuclear explosive bay in the afternoon, the day shift production technicians did not confirm—per site requirements related to pre-operational checks—that the procedure revision was still current and subsequently performed the equipment verification. The oncoming graveyard shift technicians noted the discrepancy when reviewing the completed equipment weekly verification documentation. During the event investigation, CNS noted that no weapons operations were performed in this facility between the performance of the equipment verification and the time of discovery. Furthermore, the procedural changes in the new revision did not affect the outcome of the verification activity. Notwithstanding, CNS did reperform this verification with the proper procedure revision, which yielded satisfactory results. CNS discussed a near-term capability that will be introduced into defense nuclear facilities to help prevent future occurrences. Prior to starting operations, production technicians will be able to scan the barcode on every procedure and receive verification that it is the current revision.

Fire Protection Equipment Seismic Qualification: Recently, CNS determined that the presence of cast iron fittings in the fire suppression risers in two nuclear explosive cells may affect their seismic qualification (see 1/12/24 report). This week, during the event critique, CNS discussed contributing factors for this occurrence, including that cast iron fittings were listed as an approved material for subcontractor use. Specifically, in 2009, specifications were created that introduced cast iron fittings as an option for construction of fire suppression systems. CNS review of project documentation did not correctly identify or prohibit the use of these cast iron components. In response, CNS plans to modify the *Master Design Criteria Specifications* to prohibit the use of cast iron components in future fire suppression system projects. Also, during an extent of condition review, CNS identified the use of cast iron fittings within multiple nuclear explosive bays, which should be evaluated as part of an ongoing planned improvement.