

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 21, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: C. Stott and C. Berg (acting), Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending July 21, 2023

Staff Activity: C. Jones was on-site to provide resident inspector augmentation. The staff members walked down various defense nuclear facilities and shared observations, including potential procedural and facility improvements, with appropriate site management.

Conduct of Operations: During assembly activities within a nuclear explosive bay, production technicians installed—but did not electrically connect—a certain cable within the unit. The technicians installed the cable in the correct location, but flipped it such that the electrical connector positions were reversed. Outside of any specific procedural direction, technicians identified the discrepancy a few days later when continuing operations on this unit. The technicians then placed the unit into a safe and stable configuration after obtaining concurrence from CNS Process Engineering, Nuclear Explosive Safety, and Safety Analysis Engineering.

During the investigation, the technicians noted that they read the procedural step that directs the placement of the cable and examined the associated figure, which depicts the proper cable orientation. Event investigation participants also acknowledged additional missed opportunities within the procedure for discrepancy identification. As a result, CNS intends to brief all technicians for this weapon program on the event to highlight the importance of procedural adherence and verbatim compliance. Additionally, CNS has issued and executed a nuclear explosive engineering procedure to correct the cable orientation.

Unauthorized Equipment: This week, while reviewing a related nuclear explosive engineering procedure, CNS Facility Engineering identified that a modified portable surge protector was listed in a published nuclear explosive operating procedure but was not listed as authorized Category Two electrical equipment in the appropriate site procedure. While this equipment does not connect to nuclear explosive electrical circuitry, CNS reviews and approves such devices—which may come into contact with nuclear explosives—as Category Two electrical equipment.

During the investigation, CNS participants discovered that Process Engineering had excluded Facility Engineering during review of the initial revision of the published operating procedure. This was deemed appropriate since the changes were editorial in nature. However, Process Engineering personnel then forwarded a second revision of the procedure, which listed the modified portable surge protector for use, to the same reviewers. Given these changes, additional reviewing organizations should have been selected per site guidance. As a result, CNS Facility Engineering—whose role includes verifying this modified equipment is authorized Category Two electrical equipment—was not consulted. Additionally, the investigation found that other organizations (e.g., Nuclear Explosive Safety) did not identify the discrepancy during their reviews of the procedural change. Upon discovery of the issue, CNS evaluated the modified portable surge protector and listed it as authorized Category Two electrical equipment, allowing resumption of operations. CNS also verified that no copies of the equipment were used or brought into nuclear explosive facilities.