

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 29, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: C. Berg, Acting Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending July 29, 2022

Anomalous Unit Determination: While preparing a nuclear explosive for transportation operations, CNS personnel visually identified that the unit configuration differed from the expected condition. CNS paused operations, determined the configuration was safe and stable, and subsequently held an anomalous unit determination. Upon review of the unit configuration, a CNS process engineer, design agency system engineer, and CNS nuclear explosive safety (NES) representative found that it did not meet the anomalous unit criteria (see 3/26/21 report). While the events leading to this unexpected condition are still unknown, they evaluated the nuclear explosive and deemed it to be in a known and previously analyzed configuration. As a path forward, CNS plans to apply existing processes to ascertain the state of health of the nuclear explosive. NNSA will convene a near-term NES change evaluation to assess this proposal.

Emergency Lighting: Per the technical safety requirements (TSR), the emergency lighting within nuclear explosive cells is designed to provide sufficient lighting upon normal loss of power for technicians to (1) place the nuclear explosive in a safe and stable configuration and (2) exit the operations area. To ensure this safety function is met, CNS established a limiting condition for operation (LCO) for facilities found to have two inoperable emergency lights in the operations area. Specifically, if the facility is discovered in this condition, no additional nuclear material or high explosive may be brought into the facility until all lights are operable.

During recent corrective maintenance in one nuclear explosive cell, craft workers installed incorrect ballasts into two emergency light fixtures. Following completion of a functional test, CNS personnel declared the lights operable, exited the associated LCO, transitioned the facility back to an operational mode, and moved nuclear material into the facility. Subsequently, an inspection of the emergency light fixtures by a CNS facility engineer identified the discrepant installed components. As a result of the discovery, the CNS facility representative declared the two lights inoperable and appropriately reentered the associated LCO. At the event investigation, participants noted that the ballast part number had not been verified—contrary to work order direction—prior to component installation. As corrective actions, CNS intends to submit a work order to replace the incorrect ballasts and plans to revise the associated work order to include a quality hold point to minimize event recurrence.

Furthermore, during the event investigation, an NPO facility representative questioned whether a TSR violation occurred when nuclear material was brought into the facility with two inoperable emergency lights. CNS personnel argued that the time of discovery of the inoperable lights took place following material movement into the facility; therefore, no TSR violation occurred. As a result, CNS categorized the event as a violation or noncompliance of a credited hazard control. NPO, CNS, and the resident inspector also discussed whether the incorrect ballast installation resulted in a violation of the safety requirement that all appurtenances in the operating area remain in place during and after a design basis seismic event. CNS plans to document the rationale for why no violation of this requirement occurred within its new information process.