

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 16, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending August 16, 2024

Conduct of Maintenance: This week, the resident inspectors observed CNS electricians perform a surveillance test of the emergency lights during disassembly operations in a nuclear explosive cell. The emergency lighting system inside certain nuclear explosive facilities is required by the safety basis to provide sufficient lighting to place operations into a safe and stable configuration upon loss of normal power and to facilitate emergency egress. When high explosives and special nuclear material are present, the technical safety requirements (TSR) specify—per a limiting condition for operation (LCO)—that all but one emergency lighting fixture in this cell must be illuminated for the system to be considered operable. During the surveillance activity, the resident inspectors observed more than one fixture completely extinguish for a short duration—i.e., a couple of seconds—when power for the emergency lights switched from their internal fixture batteries back to normal power. For this brief period, lighting for the continued disassembly operations was provided only by noncredited overhead fixtures and two emergency lighting fixtures powered by the noncredited uninterruptible power supply.

The resident inspectors questioned the timing of the system maintenance considering the active operations despite the potential distraction from lighting changes due to the surveillance activity. CNS responded that the momentary losses of lighting from the emergency light fixtures is an expected condition during system reset following actuation, so entry to the applicable emergency lighting system LCO was not required. Though, CNS stated their intention to change the TSR bases to clarify that entry to the LCO is not required during this surveillance activity. Additionally, CNS stated that they intend to change the procedure to preclude performing surveillance testing during operations in which the change in lighting could be distracting to the technicians. Similarly, the resident inspectors have also previously questioned the timing of fire alarm testing during nuclear explosive operations.

Conduct of Operations: Last month, while working on a nuclear explosive-like assembly (NELA) for a particular weapon program, CNS production technicians encountered a failure during an electrical cable test and non-conformed the NELA. Upon receipt of a specific exception release from the relevant design agency, CNS production technicians resumed operations. After completing multiple subsequent steps in the procedure, production technicians performed an electrical test on the NELA and encountered another failure. CNS tester design personnel inspected the test equipment and confirmed it functioned properly. CNS process engineering personnel issued a temporary procedure to allow the NELA to be disassembled to assess the cause of the electrical test failure. After partially disassembling the NELA, production technicians discovered that two cables had been installed incorrectly, paused operations, and made notifications to management. CNS contacted the relevant design agency, which requested that operations on the NELA remain paused pending further inspection to verify the cables, connectors, and other components had not sustained damage. Additionally, CNS plans to evaluate the NELA assembly process for potential improvements.