

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 29, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: A. Gurevitch, Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending April 29, 2022

Special Tooling: To protect against direct lightning insults to nuclear explosives, hoisting operations for lightning sensitive components in certain nuclear explosive cells require the installation of a dedicated isolation device between the hoist and the crane assembly. This device electrically isolates the hoist, chain, and unit from the rest of the crane assembly, and therefore prevents direct lightning strikes to electrically sensitive components. Earlier this month, CNS discovered that an isolator was not installed in a particular cell (see 4/15/22 report).

The isolator cannot be installed while a nuclear explosive is present in the facility. Last week, NPO approved a safety basis supplement, which identified compensatory measures necessary to continue unit assembly without the isolator installed. These compensatory measures include both requesting a two-hour clear weather window before hoisting operations and using an isolating sling—which is used in all but two nuclear explosive cells—during hoisting operations. After processing the specific unit in this facility, CNS will install the dedicated hoist isolator prior to introducing the next unit, restoring compliance with the Technical Safety Requirements.

Nuclear Explosive Safety (NES): Last week, a NES study group completed its review and released its report regarding the removal of certain protective blankets within the Zone 12 material access area (MAA). As part of this process, the NES Study Group (NESSG) also reviewed other NES master studies, which stated that the protective blankets were no longer required in similar circumstances. The study group identified zero findings and three deliberation topics. These topics were related to removal of a NES-credited positive measure, firearm safety features, and inconsistent documentation. The NESSG determined the protective blankets were no longer required in the Zone 12 MAA, the firearm safety features were satisfactory, and design agencies should issue formal change orders to ensure that all applicable documents provide consistent information.

Facility Electrical Bonding: In February, a DNFSB staff member identified that an engineered electrical bond clamp, which should have been attached, was instead disconnected from a newly installed wet pipe sprinkler system at the facility wall penetration (see 2/25/22 report). This penetration bond is a credited design feature to maintain the safety class facility Faraday cage. The bonding and Faraday cage mitigate high-voltage electrical ingress into the bay by directing current to ground and away from nuclear explosives. This week, a causal analysis was held and determined that an incomplete work scope in the design change package (i.e., the presence of the bond was not identified on the drawings) contributed to CNS providing insufficient subcontractor oversight. Additionally, the subcontractor did not recognize the need to stop work when the additional scope was identified. The CNS engineering group further identified gaps pertaining to the walkdown used to authorize the facility's return to service. Specifically, the walkdown scope was primarily focused on the direct facility changes due to construction, and did not include peripheral features (such as bonds) and other facility systems. CNS engineering will modify the walkdown process to address this concern.