

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 2, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending August 2, 2024

Safety Basis: Previously, CNS submitted, and PFO approved, a Pantex safety basis change package—specifically to the Sitewide Safety Analysis Report—stating that hazards to nuclear explosive facilities from construction vehicle impacts are no longer credible. As impacts from this type of vehicle are deemed not-credible, CNS is not required to perform an analysis for mechanical insults to nuclear explosive facilities or nuclear explosives in transit. CNS previously established an “extra heavy” class of construction vehicles (i.e., ones without an upper weight limit). The impact energies from such “extra heavy” vehicles exceed the existing impact analyses for the facilities.

The resident inspectors questioned the non-credible hazard determination given that construction vehicles are allowed to traverse the same material access areas (MAA)—including off-road areas alongside nuclear explosive facilities—as other surface vehicles that CNS determined are credible impact hazards. CNS and PFO personnel have responded to resident inspector concerns by stating that the use of spotters (i.e., personnel accompanying the vehicle during movement), “careful driving”, and “extremely slow maneuvering” of construction vehicles into these off-road positions is enough to consider them as non-credible impact hazards. Of note, for this hazard type to be deemed non-credible, the event must either have a frequency of less than once-in-a-million-years or be physically impossible. While the resident inspectors note that spotters can aid the equipment operator with vehicle placement, there are numerous real-world events, as documented in the DOE Occurrence Reporting and Processing System (ORPS), in which a designated spotter did not prevent vehicle impacts caused by driver error or vehicle malfunction.

Historically, the Pantex Plant safety basis listed a maximum weight that applied to any allowable vehicle inside the MAAs. This practice allowed analyses to bound the damage that could occur from impacts from all surface vehicles. Years ago, this weight-limiting strategy was changed by adopting a justification for continued operations (JCO) that permitted vehicles above this weight threshold. To limit the potential safety consequences from this change, the JCO included requirements such as lowering the speed limit for these vehicles and notifying the operations center when entering the MAAs to prevent concurrent transportation operations. These safety practices—lower speed limit and operations center notification—are no longer required given the non-credible hazard determination in subsequent safety basis changes.

Currently, PFO is reviewing another safety basis change proposed by CNS that would broaden the definition of “construction vehicles” to include all vehicles that perform construction activities along with all of the associated support vehicles. The resident inspectors continue to question the allowance of these vehicles into MAAs without an associated bounding impact analysis for the nuclear explosive facilities and/or controls to prevent such impacts. The resident inspectors have provided these additional concerns and observations on the most recent safety basis change package to both PFO Nuclear Safety & Engineering and CNS Safety Analysis Engineering for consideration. CNS plans to revise the current safety basis change package.