DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: J. Kent Fortenberry, Technical Director
FROM: Timothy Hunt and Dave Kupferer, Pantex Site Representatives
DATE: 16 November 2007
SUBJECT: Pantex Plant Weekly Report

Potential Inadequacy in the Safety Analyses (PISA): DOE Order 452.2C, *Nuclear Explosive Safety*, states that all nuclear explosive operations involving a nuclear explosive that is not certified to be one-point safe must be conducted at the Nevada Test Site. However, the Order also implies that if it is determined that a nuclear explosive does not meet the one-point safety criteria, operations involving that nuclear explosive may be performed at sites other than NTS if a Nuclear Explosive Safety evaluation is performed and approved. Several months ago, NNSA performed a limited scope Nuclear Explosive Safety Study to evaluate off-loading and staging activities involving a specific nuclear explosive. Subsequently, NNSA completed the campaign to ship and stage the subjects units at Pantex. Recently, Los Alamos National Laboratory (LANL) formally communicated to Pantex that the subject units met the aforementioned one-point safety criteria for credible scenarios. However, it appears that some information relevant to the safe staging, storage, and transportation of the units was not addressed in the LANL correspondence. This week, BWXT declared a PISA because restrictions regarding storage configurations may not be adequately captured in the documented safety analyses.

Lightning: The Nuclear Weapons Complex (NWC) Lightning Committee met in Albuquerque this week. PXSO made it clear that, while probabilistic arguments have been accepted as a basis for why lightning does not pose an imminent safety threat, additional testing or analysis need to be performed to provide a long-term, deterministic safety basis and appropriate control set. The committee is in the process of developing a consensus charter and "safety theme". The proposed hierarchal safety theme is (1) isolate sensitive components, (2) implement electrically incompatible materials, and (3) assess weapon specific configurations to identify programmatic features and controls that can be relied upon for safety. The committee agreed that the specific lightning issues should be addressed with the following priority: (1) bond wire inductance effects, (2) electrical and magnetic field effects, (3) multi-point grounding scenarios, and (4) concrete spalling. To address the inductance effects of the more than 2000 penetration bonds in nuclear explosive facilities, BWXT is currently planning to perform one of the following actions: (1) determine whether the bonds are intrinsically connected to the facility rebar, (2) document the features of the penetration that reduce the potential voltage on penetration bonds, or (3) shorten the penetration bonds to be four inches or less in length. BWXT has committed to submit a plan to resolve the aforementioned outstanding lightning issues by the end of this calender year.

Fire Protection: This week, BWXT discovered two separate degraded conditions in fire protection systems that are credited to support nuclear facilities. In one case, an employee discovered that an overhead pipe had corroded beneath a rolled groove coupling fitting. BWXT subject matter experts do not believe the corrosion significantly effected the structural integrity of the piping. In the other case, a BWXT facility representative discovered that four hangers used to support fire protection piping from a corrugated steel roof had corroded and become detached from the roof. BWXT is in the process of performing extent of condition evaluations of both issues. PXSO has questions regarding the effectiveness and reliability of the visual surveillance activities BWXT has been performing.