DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 12, 2004

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: T. Hunt and W. White, Pantex Site Representatives
SUBJECT: Pantex Plant Activity Report for Week Ending March 12, 2004

DNFSB Activity Summary: W. White was on leave Monday and was on site for the remainder of the week. T. Hunt was on site all week.

Lightning Protection Nuclear Explosive Safety (NES) Review: A joint NES review (JNR) team (consisting of representatives from NNSA, BWXT and the national laboratories) conducted a review this week to determine whether the compensatory measures necessary to restart operations following the identification of the recent unaddressed lightning pathways should be considered a minor change or whether these measures should be reviewed by a NES study. Initially, the team considered the new accident sequence and the controls required to prevent it to be outside the scope of what could be approved as a minor change.

However, after deliberation, the team concluded they could strictly interpret chapter 11.7 of the *Development and Production Manual* and evaluate the compensatory measures only and not the new information which resulted in the need for the compensatory measures. The team concluded that the compensatory measures, in and of themselves, do not pose a threat to nuclear explosive safety. The team did acknowledge in the letter approving the minor change that "a number of nuclear explosive safety issues associated with the new information regarding alternate lightning pathways were identified." The review team recommended "further study of these issues as part of the ongoing preparation for the relevant NES Studies until those issues are fully resolved." NNSA appears to have concluded its change control directives for nuclear explosive safety do not apply to new information. This is a weakness in the nuclear explosive safety change control process.

On Thursday, PXSO forwarded the conclusions of the JNR to BWXT, noting that BWXT is now authorized to restart nuclear explosive operations after implementing the compensatory controls identified in the justification for continued operation and addressing the conditions of approval contained in the PXSO safety evaluation report. The letter further requested that BWXT provide a recommendation by March 26, 2004, regarding the "method and timing to address the issues" in the JNR team letter. The issues identified include configuration management of the electrical distribution system, response of AC-powered electrical equipment to identified voltage threats, maintenance of spark gaps now credited for mitigating lightning risk, and other (unidentified) pathways that might bypass surge suppression. [I, W3, M2]

Technical Safety Requirement Violation: On Thursday, BWXT identified a metallic penetration in the vacuum chamber facility that was not bonded. Operations that have been conducted in this facility incorporate isolation appropriate for the bonded facility voltage, but not the unbonded voltage. An administrative control in the Pantex TSRs requires that "facility specific standoff requirements shall be maintained between the [nuclear explosive] and the facility, including attachments, at all times."

The penetration appears to have been overlooked because it came into the bay through an area of the floor located inside a non-structural wall. The conduit then entered the facility and was within the unbonded standoff distance of conduits that were credited as being bonded. Tracer manifold operations conducted in the area rely on a path-off isolator that is qualified only for the bonded facility voltage (30 kV) and not the unbonded facility voltage (144 kV). BWXT is now evaluating other facilities that may have penetrations that come into the facility Faraday cage in unobservable locations. [I, W4]