

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 31, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: A. Gurevitch, M. Bradisse (acting), and C. Berg (acting), Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending December 31, 2021

Year in Review: A summary of some important events at Pantex in 2021.

- Pantex completed several important production milestones in 2021, including the first production units for the B61-12 life extension program and the W88 Alt 370.
- After operations on a different weapon program were paused in late 2019 due to concerns regarding electrostatic charge generation during disassembly, Pantex with design agency support devised a new disassembly process and completed both contractor and federal readiness assessment activities in 2021. CNS is currently working to resolve NPO concerns stemming from the federal assessment, prior to resumption of operations.
- While performing operations on a unit in a nuclear explosive cell in August, a production technician felt an electrostatic discharge between himself and tooling encasing the unit. CNS investigated potential sources—such as the high explosive mat, special tooling, and dissipative footwear—and determined that radiation-shielding aprons worn by production technicians were the most credible cause. Pantex developed and executed a testing and acceptance plan for these aprons and subsequently resumed nuclear explosive operations. Aprons that passed acceptance testing were marked and returned to use; aprons that failed were removed from service. CNS plans to include aprons in the special tooling program.
- Blast door interlocks (BDI) are safety class systems designed to prevent both the inner and outer doors from opening simultaneously in nuclear explosive bays and cells. Pantex encountered several instances this year where BDIs failed preoperational checks or where the blast doors were otherwise able to be opened simultaneously (see 7/2/21, 10/15/21, and 12/10/21 reports). In at least one case, follow-on actions taken by CNS resulted in a technical safety requirement violation due to failure to enter the appropriate limiting condition for operation (see 7/16/21 report).
- Last month, Pantex experienced a loss of two-person control of Category 1 electrical cables, which are used to make direct connection to and interrogate the electrical circuitry of nuclear explosives. When personnel are present in facilities with Category 1 equipment, it must be secured or under the control of two qualified personnel; this is an important control for nuclear explosive safety, specifically to prevent unauthorized actions on the equipment. Personnel at the event investigation and critique questioned whether clear guidance exists for the responsibilities of personnel who have custody of a nuclear explosive facility. Typically, those responsibilities are well understood by production technicians, who work more closely with Category 1 and other critical equipment, but they may be less clear for other personnel who perform different types of work in these facilities. As a corrective action, CNS committed to evaluate whether these roles and responsibilities should be clarified.
- Pantex converted several key elements of safety management programs (SMP) into specific administrative controls (SAC), satisfying a deliverable in the implementation plan for Board Recommendation 2019-1. The Pantex safety basis no longer contains any credited SMP key elements for high-order consequence scenarios; this represents an improvement in safety, as SACs provide a higher level of protection and reliability than SMP key elements.