

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 5, 2024

**TO:** Timothy J. Dwyer, Technical Director  
**FROM:** Frank Harshman and Clinton Jones, Resident Inspectors  
**SUBJECT:** Oak Ridge Activity Report for Week Ending April 5, 2024

**National Nuclear Security Administration (NNSA):** NNSA established two separate field offices to oversee operations at the Y-12 National Security Complex and Pantex Plant. The Y-12 Field Office (YFO) and Pantex Field Office (PFO) replaced the NNSA Production Office, which previously provided combined oversight of both sites. NNSA separated the field offices in preparation to award separate contracts to manage Y-12 and Pantex. YFO and PFO signed a mutual support agreement on how they will interact and provide services to each other.

**Infrastructure:** The resident inspector (RI) attended the event investigation for the unplanned power outage that occurred last week when an energized electrical power line separated from a utility pole due to a failed insulator. The failed insulator created a phase-to-ground fault that resulted in the loss of power to the Y-12 protected area. Multiple buildings entered their respective limiting condition for operations (LCO) due to portions of their criticality accident alarm systems (CAAS) losing power. CNS filed an occurrence report for degradation of the safety significant system as a result. CNS isolated the downed power line and fully restored power to the site within 2.5 hours of commencement of the outage.

**Building 9204-2E:** CNS filed an occurrence report for performance degradation of a safety system due to a fault alarm on an uninterruptible power supply (UPS). This UPS provides power to the emergency notification system (ENS) which is used as partial annunciation for the CAAS in Building 9204-2. When this fault occurs in the UPS and a subsequent power interruption occurs, it will disconnect power from the ENS system downstream, rendering the CAAS annunciation in areas that are covered by the ENS inoperable. The shift manager, aware of the recent issue with this fault code on the UPS (see 3/29/2024 report), entered the LCO for a partial loss of annunciation for the CAAS. After discussions with the system engineer, the shift manager authorized the system engineer to bypass the UPS. The UPS is not credited in the safety basis as part of the safety significant CAAS. CNS later retracted the occurrence report based on an operability determination performed by the shift technical advisor, who was the shift manager at the time of the suspected system degradation, since the ENS never showed a power loss on the logs of the uncredited monitoring system in the operations center.

A week after the UPS was bypassed and the fault cleared on the unit, the UPS again entered the faulted state. Due to the unit being placed in bypass mode, the fault will not affect the power to the ENS annunciation in the building. In the RI's opinion, the reliance on the ENS speakers in Building 9204-2 to provide partial coverage of the CAAS annunciation for the building causes a vulnerability in the system design instead of installing horns in the few areas that are lacking dedicated CAAS horn coverage. The reliance on old components with odd fault characteristics is a direct contrast to the installation of the new CAAS for Building 9204-2E. If Building 9204-2 must remain in the CAAS annunciation area for Building 9204-2E, then either the system or the coverage area should be simplified to eliminate aging components that were not replaced as part of the new installation.