

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 18, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending October 18, 2024

Building 9204-2E: A resident inspector (RI) observed an audibility surveillance test of the new criticality accident alarm system (CAAS). CNS was attempting to complete the implementation verification review (IVR) of the newly installed CAAS system (see 10/4/2024 report) when multiple problems were identified. The IVR team lead identified several instances where the procedure did not work as written. The CNS system engineer working through the procedure knew how to navigate the procedure from section to section, but he was already formally trained on the new system by its manufacturer and is the subject matter expert. The IVR team lead did not have confidence that a person with lesser training could adequately perform the surveillance.

As part of the surveillance, the system engineer opened and entered two different power cabinets to manipulate switches. The YFO facility representative asked the system engineer if he had the proper training to enter the cabinets due to arc flash labeling that was installed on the exterior doors. After discussion between the YFO facility representative, the IVR team lead, and the system engineer, the system engineer determined the arc flash labeling on the cabinets was not correct and tasked qualified electricians to perform the remaining work that required entry into the cabinets.

Prior to the surveillance, CNS completed a change request to permanently modify the wiring from the legacy CAAS system by connecting the Building 9204-2 annunciation feeder signal to the newly installed CAAS in Building 9204-2E. The system engineer initiated the surveillance by activating the alarm state from the main control panel but no lights or audio from the installed horns in Building 9204-2 were activated even though Building 9204-2E lights and horns were active. The system engineer and surveillance coordinator stopped the surveillance and sent electricians to troubleshoot the problem. The electricians discovered that a fuse block had been removed as part of a previous system isolation effort by construction personnel. This discovery showed the lack of configuration management between the construction and operational divisions that were performing implementation of the new system. CNS had prepared a temporary modification that would enable restoration of the legacy CAAS if the surveillance could not be performed to implement the new CAAS. After failure of the surveillance, CNS installed the temporary modification and verified operability of the legacy CAAS.

Due to the failure of the system to annunciate properly in Building 9204-2 and issues with the procedure that resulted in a pre-start finding from the IVR team, the operations manager delayed implementation of the new CAAS. In the RI's opinion, CNS should not rely on the readiness assurance group to identify that a newly written procedure cannot be worked as written. CNS should have had multiple people perform dry runs on the surveillance using the new documents to correct errors and workability concerns prior to performance of the IVR.