

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 21, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Z. C. McCabe Resident Inspector
SUBJECT: Savannah River Site Activity Report for Week Ending May 21, 2021

Savannah River National Laboratory (SRNL): After a technician removed their hands from a glovebox where they were inspecting 3013 containers, they noticed a small hole in a glove. The glove had been installed in September 2020 and is the most frequently used glove in the glovebox. SRNL personnel are investigating to determine if it is a small pinhole from a sharp or a pinch possibly from closing a sample vial to ensure the hazards analysis is accurate

Defense Waste Processing Facility (DWPF): During load bank testing in the Halon Room, which is located next to the DWPF control room, one of the four wet pipe system sprinkler heads in the Halon Room inadvertently activation. The mechanic that was in the Halon Room at the time of the activation left the room and directly reported it to the shift operations manager (SOM). The SOM was able to visually verify the water discharge and instructed control room personnel to enter the appropriate abnormal operating procedure (AOP) and requested assistance from the fire department. The sprinkler discharged directly onto the load bank being tested (480 volts). Concerned with the possibility of electric currents in waters, the first line manager instructed personnel to secure the area and prevent anyone from entering. Neither Fire Dispatch nor DWPF received a fire alarm and there were no signs of a fire. Thus, the SOM directed maintenance personnel to isolate the water supply for the room, and later the Halon system, to prevent an inadvertent discharge due to an electrical short. SRR personnel are investigating the cause of the discharge. The Halon Room is not air conditioned. Of the four sprinkler heads in the room, the one that discharged is the only ordinary temperature rated sprinkler; the remaining are rated for high temperature. SRR believes exposure to elevated temperatures in the room during warmers months and annual load bank testing weakened the thermal element of the sprinkler over time resulting in inadvertent activation.

Savannah River Tritium Enterprise (SRTE): The glovebox stripper system is primarily used for reducing oxygen and hydrogen concentrations in the nine TEF gloveboxes. Earlier this year, SRTE personnel replaced the three glovebox stripper systems blowers, which support the high activity and low activity stripper systems. Two of the blowers have since failed. Due to anticipated extraction needs, SRTE has proposed continuing the extraction schedule (four additional extractions are planned this fiscal year) with only one blower prior to performing Open Glovebox Maintenance (OGM) to replace the failed blowers. Additionally, they are considering performing two additional extractions this calendar year before replacing the blowers. NNSA-SRFO have concurred with this path forward.

The glovebox stripper system is not a safety related system; however, it supports normal facility operation and response to upset conditions such as increased oxygen, hydrogen, and pressure levels in the gloveboxes. Operation with one blower would require the revision of an AOP and an alarm response procedure to account for not having the high activity stripper system as well as the potential loss of the low activity stripper system. These upset conditions could result in a higher tritium stack release than typical. Upon loss of the remaining blower, SRTE personnel would halt processing and place the facility in a safe condition similar to that of OGM.