

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 1, 2017

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and Z. C. McCabe, Resident Inspectors
SUBJECT: Savannah River Site Resident Inspector Report for Week Ending Sept. 1, 2017

Defense Waste Processing Facility: While performing a surveillance for a Zone 1 exhaust fan inlet vane and damper, the sand filter inlet plenum pressure went more positive than desired and tripped a safety significant interlock. This shut down the Zone 1 supply fans, Zone 2 exhaust fans and the weld test cells fans and led to a temporary building evacuation. This event illustrates why procedures may need more guidance than was what provided previously because of the influx of new operations staff. The operator performed the steps as written in the applicable procedure section to ensure there were three exhaust fans operating before stopping the selected fan (although a note and a caution statement 14 pages earlier were not followed). While the step said to stop the fan, the intent was for the operator to switch to manual control, slowly ramp the fan down to 0% output, and then stop the fan to allow the system time to adjust. Simply stopping the fan causes differential pressure to change faster than the system can react. Furthermore, the preferred state is to have four exhaust fans running and then stop the desired fan. The procedure can be performed with only three fans running, but controlling differential pressure is more difficult. While operations staff discussed critical steps at the pre-job briefing, the expectation for how to stop the desired exhaust fan was not clearly communicated.

The Chemical Process Cell (CPC) Primary Purge System remains out of service. SRR has been using the CPC Safety Grade Nitrogen (SGN) purge system to provide the required purge flows. However, the system is inoperable per the Limiting Condition for Operation (LCO) because two tank valves are leaking and thus the ability of the system to maintain four days' worth of inventory is uncertain. Because repairing these valves will require the tanks to be isolated and deinventoried, SRR wants to wait until they have two other sources of purge air in service before starting this maintenance. Meanwhile, SRR entered a new LCO condition because of the inoperable SGN system and put several tanks in standby mode. SRR also submitted a Response Plan to DOE to exclude a number of the LCO required actions. For example, they want to maintain agitation to two tanks to prevent flammable gas retention, allow water additions to prevent waste viscosity from increasing, and allow certain transfers or chemical additions to allow the waste to be transferred to facilities with operable purge systems. The basis for these exclusions is that adequate purge air is still being provided by the SGN system. SRR has also proposed compensatory actions to reduce the risk until the purge systems can be repaired.

H-Area Seismic Response: The DOE/SRNS assessment concluded that operations personnel had adequate knowledge to respond to a seismic event and/or H-Canyon exhaust tunnel collapse. The team identified several abnormal operating and alarm response procedures to revise so they address different exhaust tunnel failures and the loss of utilities in a seismic event. The team also identified the need for new drills, training on how safety systems react to a seismic event, and evaluating diesel generator fuel usage and fan configuration following a tunnel failure.

Tank Farms: Preliminary sample results indicate 16.8 w/o uranium in the sodium aluminosilicate scaling on the 2H evaporator pot wall, almost twice the 8.9 w/o analyzed.