

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 20, 2023

**TO:** Katherine R. Herrera, Acting Technical Director  
**FROM:** B. Caleca, P. Fox, N. Huntington, and P. Meyer, Resident Inspectors  
**SUBJECT:** Hanford Activity Report for the Week Ending January 20, 2023

**242-A Evaporator:** WRPS held a plant review committee (PRC) meeting to determine whether low temperature excursions, such as the event last month (see 1/5/2023 report), constitute a potential inadequacy of the safety analysis (PISA). Equipment that is exposed to temperatures outside of their design parameters can experience damage or have reduced lifespans. As a result, low temperatures experienced while a facility is in shutdown mode can result in undetected failures that lead to accidents during operations mode. A resident inspector observed the PRC meeting. The committee discussed elements that contributed to the event and the safety basis impacts. They noted that the activation of the K-1 exhaust heater coil was prevented by an inability to bypass a system interlock due to an out-of-service flow indicator that was under repair. In addition, alarm setpoints and response procedures did not drive operator actions to protect plant equipment. Further, the K-1 system had been operating in a degraded state since at least 2014, when one of the two heating coils failed and not repaired. Their evaluation focused on the assumptions used for a failure modes and effects analysis (FMEA) for safety equipment inside the evaporator building. Under the assumptions, a temperature low enough to damage facility equipment was assumed to not be credible because operators could identify and address low temperatures in a timely fashion. However, the FMEA did not account for failures to implement adequate procedures for monitoring and controlling facility temperature. In addition, the PRC noted that there are cases where cold weather could damage safety systems while waste is in the facility. Based on this discussion, the PRC determined that a PISA does exist.

**Solid Waste Operations Complex (SWOC):** During dry pipe internal inspections of the fire suppression system in building 2402-WF, excess sediment and corrosion products were identified in the one-inch branch lines. The SWOC Technical Safety Requirements identify the fire suppression system as a safety significant component, which is required to be operable at all times. An emergency impairment was declared, and the fire suppression system was subsequently determined to be inoperable. Project personnel flushed the branch lines and are evaluating the situation to determine a path forward for restoring operability.

**Tank Farms:** AX-101 retrieval activities continue. During the sluicing activities, solids have been plugging the slurry pump. To clear the pump of solids, retrieval operators add dilution water to push the solids away from the inlet of the pump; this also reduces the concentration of the waste. So far, the retrieval team has performed two transfers from AX-101 to AZ-102.

**324 Building:** A resident inspector observed a limited emergency response drill held to allow two individuals assigned to facility emergency response organization (FERO) incident command post positions to maintain proficiency. The scenario was adequately challenging, and the drill coordination team's management of the drill was effective. Additionally, the drill coordination team's post-drill evaluation of the FERO team's performance was critical and consistent with the resident inspector's observations. Overall FERO performance fulfilled drill objectives, with only minor deficiencies.