

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 19, 2024

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 19, 2024

Hanford Site: Site operations were impaired by abnormally cold temperatures, ice, and snow throughout the week. Snow and freezing rain resulted in early dismissal of dayshift personnel (except essential personnel) and cancellation of backshift work on two days and a full day closure on Friday. Additionally, low temperatures caused difficult work conditions and damaged systems at several facilities. At the 222-S Laboratory, a heat pump for the maintenance annex was out of service leading to cold temperatures inside the building, freezing some fire suppression pipes and damaging several sprinkler heads. The heat pump was restored after the frozen pipes were discovered and, because of the damage, HLMI isolated a water riser that supplies fire suppression sprinklers to the area. Work activities are restricted until the system is repaired. HMIS Fire Systems Maintenance is putting together a work package to determine the extent of damage to the sprinkler system. The low temperatures, along with insufficient freeze protection measures, also resulted in a damaged fire main riser at the Waste Treatment Plant (WTP) Low Activity Waste Facility. Freezing also caused blocked pipes in other systems around the WTP site. WTCC is working to determine the full extent of the conditions.

242-A Evaporator: After shutting down part of the facility's ventilation system to perform routine maintenance, the system was unable to achieve an adequate flow rate after restart. This condition engaged an interlock that prevented the heating system to the building from operating for several hours. This is the same interlock that shut off heating to the facility last year leading to extensive freeze damage to multiple systems and triggered a need for months of repair work, as well as changes to operating procedures and the facility's safety basis (see 1/6/2023 and 12/22/2023 reports). Facility operators identified the loss of heat during the performance of other duties and swiftly performed actions to address the problem. While temperatures did not fall below freezing in the facility, temperatures did fall below low temperature alarm levels in some areas and did not fully recover for several days. The startup procedure for the fans required verification of adequate flow rates by the stationary operating engineer (SOE) responsible for the ventilation system, and the ventilation control system can send an alarm to the facility control room once temperatures drop below 55 degrees Fahrenheit. However, the SOE did not notify the control room that the flow rate was unsatisfactory, and a pre-existing alarm condition, which has been known to facility personnel, prevents any new alarms from transmitting to the control room. As a result, the expected signals to prompt operator actions were not effective. Facility management has instituted temporary rounds that require verification of ventilation system operability by an SOE and periodic performance of manual temperature readings by facility operators throughout the facility until the alarm malfunction can be corrected.

Waste Treatment Plant: Tie breakers that allow the standby diesel generator (SDG) to supply power to plant systems were left racked out after workers completed maintenance on the SDG in mid-October. The abnormal condition, which prevents the SDG from performing its primary function, was not discovered until last week, indicating a potential shortcoming in configuration

control processes for facility systems.