

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 5, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: B. Caleca, P. Fox, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending April 5, 2024

Waste Treatment Plant: Shift personnel are adding frit to Low-Activity Waste Facility melter #2 to establish a molten glass pool prior to transitioning to joule heating.

A melter #2 primary off gas header high pressure trip occurred when plant operators were placing the bypassed caustic scrubber online. The trip resulted in a realignment of the melter #2 primary and the plant secondary off gas systems. Although operators have performed this realignment before, this is the first time it has been accomplished with off gas flow from two melters vice a single melter. Plant personnel believe the higher flow rate, together with the rapid movement of the pneumatically operated valve, resulted in a pressure transient that caused the trip. During event recovery, plant operators encountered a haze and an acrid odor in the upper melter gallery and the thermal catalytic oxidizer equipment room. They reported the potential fire to the Control Room Supervisor, who initiated the required response, notifying Hanford Fire Department (HFD) and evacuating the facility. HFD firefighters subsequently entered and inspected the facility. Although they confirmed the presence of a haze and the acrid odor, they determined there was no fire in the facility. An evaluation conducted by plant operations and engineering personnel determined that the haze and odor most likely resulted from heating of the insulation on the standby film cooler and associated off gas of organic products contained in the insulation. The automatic system realignment caused by the trip had placed the unit in service. Operators noted this is the first time this component has been online with temperatures high enough to result in the expected off gas. Plant management held a technical discussion and a fact-finding meeting to evaluate the response to both events, collect lessons learned, and identify opportunities for improvement. The overall response by plant personnel was appropriate and ensured safety of both personnel and the plant.

222-S Laboratory: The Shift Operations Manager ordered an evacuation of the laboratory when a small fire, which was caused by an inadvertent spill of fuming nitric acid on a single paper towel within a hood, was reported by chemical technologists (chem tech) working in the room. The chem tech team lead, who was called to the scene, put out the fire within a minute with available water. HFD firefighters responding to the event subsequently confirmed the fire was extinguished. The fire did not result in any injuries or spread of contamination.

Hanford Site Lightning Protection: Resident inspectors are performing a review of lightning protection systems (LPS) at the Hanford Site. A resident inspector walked-down the Canister Storage Building and the Waste Receiving and Processing Facility and found their LPS systems appear to have been designed and installed consistent with the requirements in NFPA 780, *Standard for the Installation of Lightning Protection Systems*. However, there is no record of any inspection, testing, or maintenance having been performed. A walk-down of waste storage buildings at the Central Waste Complex (CWC) revealed some of the buildings may not have an installed LPS or do not fully meet NFPA 780 requirements. The CPCCo Engineering Manager agreed to determine CWC building compliance with NFPA 780 based on these observations.