

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 12, 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 12, 2024

Tank Farms: A resident inspector met with WRPS managers to discuss the use of lightning protection systems in the tank farms. In the 1990s, past contractors grounded tank risers and installed lightning rods on light poles in tank farms believed to have a higher risk of lightning induced flammable gas explosions. A later safety analysis determined that lightning protection is not required because of the low likelihood of a lightning strike concurrent with high flammable gas concentrations in tanks. Based on that evaluation, the contractor abandoned the systems in place. The resident inspector shared their summary of existing lightning protection systems, as well as their understanding of DOE requirements to protect safety systems from lightning using National Fire Protection Association 780, *Standard for the Installation of Lightning Protection Systems* (NFPA 780). Contractor personnel were receptive to the information and acknowledged the potential for lightning damage to safety equipment because of incomplete implementation of NFPA 780. WRPS management stated that they will evaluate safety-significant systems in the tank farms to determine if they are adequately protected from lightning strikes.

A resident inspector observed a corrective action review board (CARB) evaluation of the results of an apparent cause analysis performed after a technical safety requirement violation occurred when tank farms personnel removed an administrative lock on the power supply to a tank farm hydraulic power unit (HPU). The report noted that the personnel performing the activity did not understand the configuration of the facility and did not adhere to the contractor's procedure for applying and removing administrative locks. During the CARB, the DOE facility representative raised concerns about the apparent cause being narrowly focused on personnel failure. After extensive discussions, the CARB determined further review is necessary and did not vote.

T Plant: A resident inspector observed on-scene performance of personnel during an emergency preparedness drill, which plant management conducted to check the proficiency of individuals assigned to Facility Emergency Response Organization (FERO) positions. The scenario, which involved a forklift accident resulting in a punctured waste container and subsequent spill of contaminated material, was appropriate for evaluation of annual proficiency requirements. Individuals assigned to the FERO team demonstrated excellent knowledge of their roles and responsibilities and communicated well resulting in an efficient, well-organized, and effective response. However, the team assigned to work inside the contamination reduction zone was confused about their turnback values and had difficulty communicating because of noise from their respiratory protection equipment. These difficulties presented a valuable learning opportunity for members of the team. Additionally, individuals assigned to the same team did not set their contamination detection instruments correctly. This error would have limited their ability to detect expected alpha radioactivity. The drill team's evaluation of FERO performance during the post drill hotwash was consistent with the resident inspector's observations.

Waste Treatment Plant: Plant personnel raised the glass pool level in melter #2 to 18 inches and are preparing to initiate joule heating.