

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 15, 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 November 15, 2024

Tank Farms: WRPS recently completed the development of safety design strategies (SDS) for the Advanced Modular Pretreatment System (AMPS) and the West Area Risk Mitigation (WARM) projects. Both projects are managed by WRPS but will transition to H2C management because of an upcoming contract transition. A resident inspector met with WRPS management personnel to discuss and understand the sequencing of nuclear safety milestones for the projects. Under the existing plan, the AMPS project will develop a PDSA that complies with DOE STD 3009-2014, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*. They forecast receiving DOE approval of the PDSA in fiscal year 2026. However, they also need to begin procurement of the facility's process modules before the end of this fiscal year. Consequently, they are developing the design information to support that effort. DOE will approve that package and the early procurement as part of a separate critical decision milestone. WRPS intends to transition the PDSA information into the Tank Farm Documented Safety Analysis (DSA) prior to facility startup. However, WRPS is also revising the Tank Farm DSA to align it with current standards, including DOE STD 3009-2014. Merging the PDSA into the DSA is contingent on completing the DSA revision. The scope of the DSA revision, which is expected to be significant, remains undefined. A WRPS subcontractor is developing a gap analysis between the current DSA and DOE STD 3009-2014 requirements. Based on the results, WRPS will work with DOE to identify a scope for the DSA revision, which will allow the development of a schedule to support integration of the two analyses. The WARM project team is following a similar strategy, but on a more compressed schedule. Like the AMPS project, the project will develop a separate PDSA that will merge with the revised Tank Farm DSA. Near concurrent development of the new PDSAs benefits from the similarity of the two projects. However, development of the PDSAs while revising the Tank Farm DSA, followed by integration of the analyses into the DSA within a timeline that supports existing mission requirements, will be a challenge for the contractor.

DNFSB Staff Activity: A DNFSB staff team met with DOE and WRPS project and nuclear safety personnel to discuss the SDS and relevant references for the AMPS and WARM projects.

Hanford Site: The site services contractor maintains an unmanned aircraft system (UAS) capability to support various missions across the site. The Tank Operations Contractor (TOC) initiated a Process Hazards Analysis (PRHA) for flying UAS vehicles in the vicinity of TOC nuclear facilities. These facilities include Tank Farms, the 242-A Evaporator, and the Liquid Effluent Retention Facility. Examples of hazards under evaluation include UAS vehicle strikes to structures, systems, and equipment; strikes to facility workers, and fires resulting from overheated UAS vehicle batteries. The PRHA evaluates UAS vehicles as large as 55 pounds, with a maximum speed of 25 mph and an altitude ceiling of 12,000 ft. Smaller vehicles are being evaluated for surveillance use inside waste tanks.