

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 1, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: B. Caleca, P. Fox, N. Huntington, and P. Meyer, Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending December 1, 2023

DNFSB Staff Activity: The Resident Inspectors were in Washington, DC, to brief the Board regarding Hanford Site observations, and to participate in oversight coordination meetings.

Waste Treatment Plant High Level Waste (HLW) Facility: The DOE field office convened its senior review board (SRB) to review a preliminary documented safety analysis (PDSA) revision for the HLW facility. The revision incorporates the direct-feed strategy for the facility. It also revises the waste acceptance criteria and removes assumptions that BNI believes no longer apply. These changes result in a downgrade of all safety class hazard controls to safety significant. In addition, BNI recalculated co-located worker doses using a different atmospheric dispersion model, which further reduces consequences for multiple facility accidents. The SRB agreed to forward the revised PDSA to the Safety Basis Approval Authority, recommending approval with no conditions.

Tank Farms: WRPS held a Plant Review Committee (PRC) meeting to discuss a question raised by the DOE Office of Nuclear Engineering & Safety Basis Assessments (EA-34) regarding how accident consequences resulting from a tank failure due to excessive dome loading are evaluated in the Tank Farm safety basis. The analysis assumes the soil overburden will scavenge 90 percent of the lofted waste particulates when it falls into the tank. The EA-34 team noted that there is no technical justification for this assumption although it is used to reduce the dose to exposed individuals by a factor of ten. EA-34 also noted that the soil depth value used in the analysis is not conservative for all cases. However, soil depth is a minor factor in the calculation. The PRC members agreed that the scavenging assumption issue represents a Potential Inadequacy in the Safety Analysis because it could increase the radiological consequences to co-located workers above the threshold that requires safety significant hazard controls. During the meeting, the PRC members noted that the consequence calculation for this accident does not incorporate a recently revised atmospheric dispersion coefficient. Use of the revised coefficient would reduce, but not fully eliminate, the non-conservatism introduced by the unjustified scavenging assumption. They further noted that it appears that using the updated atmospheric dispersion coefficient without the scavenging assumption results in consequence levels below the threshold requiring additional controls. WRPS intends to update the analysis using the updated atmospheric dispersion coefficient and modified soil depth assumptions.

324 Building: Facility radiological control (RadCon) management held an in-progress ALARA review to understand the reasons for contamination levels found during a routine survey in a contamination area. The contamination level exceeded the void level of the radiological work permit used for the survey and would normally require a high contamination area (HCA) posting. The attendees noted that the contamination was found at the lip of a transfer port, which is normally posted as an HCA while in use. Based on the results of the ALARA review, RadCon management will review posting of transfer ports and will also review personal protective equipment used while performing surveys in these locations.