DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 17, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca, P. Fox, and P. Meyer, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending September 17, 2021

Waste Encapsulation and Storage Facility (WESF): Resident inspectors observed a Plant Review Committee (PRC) meeting that contractor management held to evaluate new information on flame impingement temperatures that might occur during a G Cell fire. Although the existing WESF Fire Hazards Analysis (FHA) analyzes fire conditions based on a conservative peak compartment temperature, it does not analyze flame impingement on cesium or strontium capsules that might be in the G Cell during a fire. A draft revision of the FHA, which supports future capsule transfer activities, analyzes flame impingement and identifies an impingement temperature that is significantly higher than the peak compartment temperature assumed in the current fire accident analysis. This temperature is above the melting point for cesium chloride contained in the cesium capsules. Cesium chloride expands when it melts and could cause a failure of the stainless steel capsule due to stress cracking. The PRC determined that the new information represents a potential inadequacy of the safety analysis and the contractor is proceeding with an unreviewed safety question determination. Facility management has issued a timely order that precludes transfer of capsules into G Cell until the question is resolved.

The Resident Inspectors walked down the WESF and met with project personnel to discuss ongoing facility preparations that support future transfer of the cesium and strontium capsules currently stored in the WESF pool to dry storage.

105-KW Basin: A contractor work team filled a second sludge transport and storage container (STSC) with garnet filter media. The STSC was subsequently transferred to T-Plant for storage. The third STSC is in place to support retrieval of additional filter media.

Liquid Effluent Retention Facility (LERF): A contractor team completed installation of the new cover on LERF Basin 44. Sludge removed from the basin is being shipped to PermaFix NW for grouting. The grouted sludge will be sent to the Environmental Restoration Disposal Facility for permanent disposal.

Waste Treatment Plant (WTP): The WTP contractor held an event investigation after the installation of a lockout-tagout on a process control cabinet resulted in an extended, unplanned loss of control and indications for several systems. During the meeting, participants noted the startup organization did not release the work when it was first proposed because of operational impacts that might occur during the work. The extent of the impacts indicated a need to replan the work, but it was not sent back to planning. The system and related open work items were subsequently turned over to the operations organization. The work item was then scheduled and released for work. The shift supervisor who released the work did understand that indications would be lost. However, they did not recognize that removal of power from the panel would result in a loss of its programming which, in turn, would result in loss of control and indication for the affected systems until the programming was restored. Participants also noted that a review by an Instrumentation and Controls Engineer and a requirement to perform work within 48 hours of performing an operational impact review might help preclude future recurrence of this type of event.