DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 29, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca and P. Fox, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending November 29, 2019

Tank Farms: DOE-ORP sent a letter notifying the Board that they have completed actions 2-3 and 2-4 of DOE's Implementation Plan for addressing safety issues associated with the Hanford Tank Farm's flammable gas safety strategy as identified in Board Recommendation 2012-2. These actions developed and implemented a safety basis amendment that includes the use of previously installed safety-significant real-time ventilation flow monitoring in all active double-shell tanks (DST) (see 5/24/2019 and 8/27/2019 reports). These flow monitors are used to ensure that adequate ventilation flow exists to prevent unsafe flammable gas concentrations in the headspace of DSTs. DOE-ORP also reported that the same safety basis amendment documented a planned improvement that calls for the deployment of safety-significant portable exhausters if mixer pumps are installed in the DSTs to support retrieval of high-level waste. Use of mixer pumps in the DSTs would increase flammable gas release rates, as well as the related hazards. However, since retrieval of high-level waste will not occur for over a decade, DOE-ORP has chosen to document the commitment in the Tank Farm Documented Safety Analysis (DSA) rather than procure and maintain equipment that will they will not need or use for an extended period. Based on their documentation of the planned improvement in the Tank Farm DSA, DOE-ORP considers the two remaining implementation plan action items that address this commitment complete. Consequently, they have determined that they have completed all commitments in the DOE Implementation Plan for Board Recommendation 2012-2.

Direct Feed Low-Activity Waste (DFLAW) Program: DOE conducted a Project Peer Review of the Low-Activity Waste (LAW) Facility and other aspects of the DFLAW program that are necessary to support startup up of the LAW Facility. During the out-brief, the team noted that the control set contained in the current Documented Safety Analysis for the LAW facility is very complex and will be extremely difficult to implement. Additionally, they indicated that the lack of a DNFSB staff review of the Tank Side Cesium Removal System final design is a project risk since a future review by the DNFSB staff might identify issues that the project might need to address before startup of the system. A final team report is expected in January.

Hanford Site: The Electrical Utilities (EU) contractor personnel held a causal analysis meeting to discuss a power outage on October 30, 2019. The outage lasted over six hours, and participants shared concerns from the Waste Treatment and Immobilization Plant (WTP) about the effect of extended power losses to their systems. This outage had occurred shortly after two lines in the 200 West area were tied together to facilitate electrical distribution upgrades for the site. When this connection had been made, EU personnel had not checked the loads on the line and had not considered the addition of 100 amp fuses installed in 2018 to allow isolation of power to the Plutonium Finishing Plant without entry to a radiological area. In addition, unusually cold weather is believed to have caused an increased power draw that ultimately melted one of the 100 amp fuses. EU personnel discussed plans to change the software used to track loads from power lines onsite to provide more discrete information that could prevent recurrence, and believe this type of event to not be credible at the WTP site.