

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 12, 2022

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 August 12, 2022

Tank Side Cesium Removal (TSCR) Process: Tank Operations Contractor (TOC) personnel submitted a draft evaluation of the safety of the situation (ESS) to address the positive unreviewed safety determination (USQD) on errors in a technical evaluation for system blowdowns to the field office for review (See 7/29/2022 and 8/5/2022 reports). During their review of the ESS, the resident inspectors also reviewed the language of the affected technical safety requirements (TSR) and operator actions currently performed to implement the TSRs. They noted several additional safety basis weaknesses, which are not addressed by the ESS. Existing TSR language requires a visual verification of valves identified in the technical evaluation to accomplish the TSR. Since the enclosure cannot be accessed prior to blowdown, operators perform the verification using a camera. However, valve position indicators, the valves themselves, and camera system are not safety classified at the same level as the TSR. In addition, the TOC's extent of condition identified a valve is used to perform treated waste delay tank blowdowns but cannot be visually verified; engineering subsequently implemented a change to the TSCR control system to isolate a second valve in series to resolve this issue. This control is not the same as a visual verification but is not called out in the TSR language. Operation of the valves for this control also uses software and control systems not appropriately credited in the safety basis. If any of the above systems do not function properly, a blowdown or flammable gas displacement might not be successful. The resident inspectors shared these observations with TOC and field office personnel. At present, TSCR access remains restricted while the ESS is under review by the field office.

200 Area Interim Storage Area (ISA): New calculations were performed on several fuel casks authorized for storage at ISA. The calculations considered the actual material-at-risk for each cask based on a 2022 decay date. Of the casks analyzed, the cask with the highest curie content was found to have increases in some radionuclide isotopes with respect to the bounding cask inventory assumed in the ISA Documented Safety Analysis. These radionuclide increases result in an increase in the safety basis dose consequences. As a result of this new information, the contractor Plant Review Committee (PRC) declared a potential inadequacy in the safety analysis and subsequently made a positive USQD. The PRC imposed restrictions on receipt of any additional fuel casks of this type pending resolution of the USQD.

Building 324: Facility personnel installed portable air conditioning units in contamination areas to provide cooling for ongoing work activities. These units, which generate condensate water, are frequently left operating while unattended. Several leaks of condensate have occurred, with the past two events causing water to escape their containment and seep into clean areas of the facility. No contamination was spread, but project management convened a meeting with facility personnel to review the events. The discussion identified weaknesses in conduct of operations and configuration management. The installation of air conditioning units was done in a fashion similar to the electrical heating system modifications leading to freeze damage of the facility's fire suppression system (see 5/6/2022 report).