

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 6, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Timothy L. Hunt, Cognizant Engineer
SUBJECT: Idaho National Laboratory (INL) Report for October 2020

DNFSB Staff Activity. No staff members were on site during October 2020.

COVID-19 Update. INL entered Phase 2 of its Reconstitution Plan on June 3, 2020, and remained in Phase 2 throughout October 2020.

Installed Bypass Blower Components Made From Incorrect Material. On August 24, 2020, Fluor Idaho declared a potential inadequacy in the safety analysis (PISA) due to the discovery that components associated with the 250 bypass blower at the Integrated Waste Treatment Unit (IWTU) had been fabricated from neoprene or teflon instead of stainless steel. If an upset condition occurred during waste processing, one or more of these components could fail due to high off-gas temperatures and release off-gas containing NO_x into occupied spaces. Fluor Idaho subsequently declared a positive unreviewed safety question (USQ). Corrective actions include installing spectacle flanges on the blower side of the two isolation valves, arresting the potential release of NO_x gasses. The facility remains in shutdown mode while the revised controls are incorporated into the IWTU safety basis revision, which is currently under review by DOE.

IWTU Vessel and Piping Seismic Stability. On August 10, 2020, Fluor Idaho declared a PISA at IWTU related to missing mica spacers between lateral support arms and the denitration mineralization reformer (DMR) vessel structure that were assumed to be in place in the analysis. During an extent-of-condition evaluation, Fluor Idaho found that the same mica spacers were also included in the process gas filter (PGF) structural analysis but not installed. The primary concern would be if missing spacers could lead to the upper supports completely failing, allowing the DMR/PGF to tip over during a seismic event. Such a scenario could potentially damage the DMR cell, breaching the confinement boundary. The USQ determination turned out to be negative, as the analysis concluded that there was a considerable safety margin between reported stresses and a complete failure of the support arms. Fluor Idaho still plans to install lateral restraints to ensure that the DMR and PGF lower supports and seismic restraints conform with the structural analysis.

Technical Safety Requirement (TSR) Violation During HFEF-14 Transfer and Handling. A TSR-level control for HFEF-14 casks requires that the lid and sliding door of a cask loaded with spent nuclear fuel (SNF) be secured during transport and handling to mitigate the potential for direct radiation exposure risk to the worker. "Secured" is defined as all bolts are in place and minimum torque values are applied. On October 13, 2020, SNF operations transported a cask to the Radioactive Scrap and Waste Facility (RSWF). After removing the eight cask lid bolts during unloading, wind speed exceeded 20 mph, which required the cask to be placed in a safe condition (i.e., on the cask stand at RSWF). The bolts were re-installed and hand tightened, but not torqued, as required. The cask was then transferred to the cask stand, violating the TSR control. The following day, SNF workers retrieved the cask from the stand, again handling the cask without the eight cask lid bolts torqued, and violated the TSR for a second time. It was later determined that the technical procedure does not directly account for the retorquing of the cask lid bolts.