DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 4, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Timothy L. Hunt, Cognizant Engineer
SUBJECT: Idaho National Laboratory (INL) Report for September 2019

DNFSB Staff Activity: Chairman J.B. Hamilton and cognizant engineer T.L. Hunt were on site September 9-10, 2019. During the visit, the chairman toured numerous Idaho Cleanup Project (ICP) facilities. In addition, the chairman had discussions with DOE-Idaho (DOE-ID) and Fluor Idaho personnel on the status of ongoing and planned missions/operations related to the ICP.

Conduct of Operations at Idaho Nuclear Technology and Engineering Center (INTEC). A hoisting and rigging event took place on a storage pad located west of CPP-666. Operators were attempting to remove the lid from an empty HFEF-14 cask using a limited field use (LFU) version of the technical procedure (used to walkthrough complex procedures for training and workability purposes prior to issuing approved procedure). When the procedure reader announced the step to "Remove cask lid bolts", the operator removed only six of the eight bolts. The original HFEF-14 cask lid, a simple steel plate, had been replaced of late by a newly fabricated lid restraint system to provide additional protection against lid separation in the event of a cask drop. The operator incorrectly concluded that the remaining two lid bolts were part of the lid restraint assembly and, thus, they did not attach the lid to the cask. When the crane operator attempted to lift the lid from the cask, the lifting sling was rent. Short-term corrective actions included performance of the monthly crane maintenance due to assumed shock loading, engineering evaluation of cask and lid restraint system components, and evaluation of suggested changes to the LFU procedure.

An overhead bridge crane was improperly accessed by a radiological control technician (RCT) at the CPP-666 Fuel Dissolution Process Area. When the RCT and scissor lift operator were about half-way up to the crane to perform radiological surveys, the RCT questioned whether a lockout/tagout (LO/TO) and/or fall-protection were required. The RCT and lift operator stated that the supervisor told them no LO/TO or fall-protection were required so they continued to the crane. The RCT accessed the crane catwalk and performed radiological surveys without the application of a LO/TO to isolate the crane from hazardous energy and to prevent motion. Other concerns with this event were that no work order had been issued for the activity and the fall protection hazard analysis (FPHA) was outdated. INTEC Waste Management personnel indicated that immediate corrective actions would include suspension of crane and elevated work pending consideration of additional actions and an extent of condition evaluation of all FPHAs.

Damage to Advanced Mixed Waste Treatment Facility Supercompactor. All ten 3/8 in. bolts attaching the shroud (i.e., a splashguard and debris shield) to the ram of the supercompactor sheared, creating an equipment misalignment. The apparent reason for the bolts shearing was a buildup of magnesium oxide (being used during the pyrophoric waste campaign) and Aquaset™ absorbent. Both of these substances form a cement-like matrix when exposed to water. The shroud impinged on this buildup of material and stressed the bolts past their yield strength. Fluor Idaho conducted a criticality cleanout of the ram to eliminate the accumulated sludge material and verified operability of the supercompactor via an engineering analysis. The Treatment Facility is expected to complete its current mission in October 2019.