

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 4, 2020

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

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

COVID-19 Update. INL remained in Phase 2 of its Reconstitution Plan throughout August.

Wildfire on the INL Reservation. During the early morning hours of August 6, 2020, a lightning strike started a wildland fire about a mile north of the Radioactive Waste Management Complex. The INL emergency operations center was activated to gather information and coordinate site-wide incident responders, as needed. The INL Fire Department and the Bureau of Land Management responded and had the fire 100 percent contained by midday of August 6 and extinguished on August 9 with an approximately 900 acres burned. No INL structures or facilities were directly impacted by the fire. The INL Wildland Fire Management Committee will be meeting in September to discuss impacts of the fire.

Potential Inadequacies in the Integrated Waste Treatment Unit (IWTU) Safety Analysis. On August 10, 2020, a potential inadequacy of the documented safety analysis (PISA) was declared at IWTU as a result of new information involving the seismic analysis of the denitration mineralization reformer (DMR) and structural evaluation of the manway nozzle on the DMR. The focus of the DMR seismic analysis portion of the PISA is missing mica spacers between lateral support arms and the vessel structure that were assumed to be in place in the analysis. With the spacers not installed, the DMR may experience more lateral motion during operations and a design basis earthquake than was evaluated. The structural evaluation of the DMR manway nozzle involves possible errors wherein some of the attached piping could exceed allowable stresses in a seismic event. Both conditions could negatively affect the DMR and associated piping in a seismic event. IWTU will remain in shutdown mode at least until further analysis or additional modifications show that the DMR and associated piping meet PC-2 seismic requirements.

On August 24, 2020, a PISA was declared by Fluor Idaho due to components associated with the 250 bypass blower at IWTU not being fabricated from stainless steel. The intended use of the 250 blower is to provide a vacuum to the in-cell hoses for cleanup of loose radioactive particulates in the cell or in systems to be opened for maintenance or modification while in shutdown mode. The blower inlet and outlet couplings are made of neoprene instead of 300 series stainless steel as specified on the facility change form (FCF). The neoprene couplings were included in a field design change but the associated unreviewed safety question determination identified and analyzed the couplings as stainless steel, not neoprene. In addition, two other components were subsequently found not to be made of stainless steel. The as-built configuration of the 250 blower system meets the engineering design drawing; however, the design drawing and the design criteria in the FCF did not align. 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 nitrogen oxides into occupied spaces. The situation that resulted in this PISA was at least partially due to poor communication between IWTU engineering and nuclear safety personnel.