

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 2, 2023

**TO:** Katherine R. Herrera, Acting Technical Director  
**FROM:** Erin A. McCullough, Cognizant Engineer  
**SUBJECT:** Idaho National Laboratory (INL) Report for May 2023

**DNFSB Staff Activity.** The Board's INL cognizant engineer held weekly meetings to maintain awareness of site activities. Two staff members visited INL to observe operations at the Integrated Waste Treatment Unit (IWTU) and Advanced Mixed Waste Treatment Project (AMWTP).

**Further Update on Occurrence Reporting and Processing System (ORPS) Entry for Potential Electrical Exposure to an Uncontrolled Hazardous Energy Source at IWTU.** On April 3, 2023, the contractor submitted an ORPS entry titled EM-ID--IEC-IWTU-2023-0003 - *Potential Electrical Exposure to an Uncontrolled Hazardous Energy Source*. The Board's *INL Report for March 2023* explained the fact that this entry did not capture the entire sequence of events and omitted several facts that are necessary to accurately describe the potential issues. Department of Energy Idaho Operations Office (DOE-ID) personnel revised this ORPS entry, but the revision does not appear to include all of the facts the Board's staff considers relevant to the event. DOE-ID personnel committed to requiring the contractor to conduct an internal causal analysis that addresses the remaining factual issues. The Board's staff will review this analysis.

**IWTU Pauses Waste Processing.** Throughout the month, control room operators responded to unexpected temperature variations across the Denitration Mineralization Reformer (DMR) bed during certain process steps at IWTU. These temperature variations led to multiple rapid system shutdowns (RSS), which temporarily discontinued waste processing operations. Although the operators recovered the facility from the separate RSS events, the temperature variations persisted throughout May. On May 28, 2023, the high temperature variation impacted waste transfers from the Idaho Nuclear Technology and Engineering Center tank farms. In response, IWTU leadership paused waste processing operations at IWTU while site engineers investigate potential causes and mitigations for this issue. IWTU leadership also deferred Part II of the System Performance Test, which includes collecting data for the air quality permit associated with IWTU processes.

**Contamination Event at AMWTP.** On May 9, 2023, a radiological control technician (RCT) performing weekly surveys identified a stain on the sealed concrete floor in WMF-631. This is a Type II storage facility, where waste drums are often stacked five-high. The RCT took an initial reading, which showed 15dpm/100cm<sup>2</sup> alpha removable and 1,000dpm/100cm<sup>2</sup> alpha total contamination. Additional surveys of a metal pallet on which drums were stacked showed 1,200dpm/100cm<sup>2</sup> alpha removable and 96,000dpm/100cm<sup>2</sup> alpha total contamination. The investigation into the source of the contamination took several days due to the need to move waste drums from the stack. On May 11, 2023, the origin of the contamination was identified as a leaking drum from the BN510 waste stream. The Type II storage facility is not heated, leaving the drums exposed to cold winter conditions and thermal cycling. During the fact-finding meeting for this event, the Board's staff members heard AMWTP personnel discuss how "weeping" and "leaking" drums are "normal and to be expected for this time of year." However, the Board's staff are not aware of any analyses that formally document and manage safety issues associated with environmental conditions affecting BN510 waste drums.