

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 7, 2023

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

**DNFSB Staff Activity.** The Board's INL cognizant engineer held weekly meetings to maintain awareness of site activities. Two staff members visited the Integrated Waste Treatment Unit (IWTU). A small staff team observed the sitewide annual full-scale emergency exercise on June 15, 2023, from three different locations. Two staff members attended the Department of Energy (DOE) Standard 5506 Training regarding safety basis document preparation and discussed organizational priorities with DOE Idaho Operations Office (DOE-ID) personnel.

**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. Idaho Environmental Coalition, LLC (IEC) personnel revised this ORPS entry, but the Board's staff noted that the revision did not appear to include all of the facts the staff considered relevant to the event. IEC personnel, as part of their event investigation process, conducted an internal documented causal analysis that addresses the remaining factual issues. DOE-ID provided the Board's staff a copy of the contractor's submission. The document appears perfunctory, offering an incomplete event reconstruction and timeline, and unsubstantiated conclusions. At the time of transmission, DOE-ID personnel expressed similar concerns about the document and stated an intent to work with the contractor to improve it.

**IWTU Pauses Waste Processing.** Since beginning waste processing operations, IWTU personnel have experienced persistent challenges with keeping the waste feed nozzles clear (see INL Report for April 2023). IWTU personnel have identified persistent plugging in the waste feed nozzles. Throughout June, IWTU personnel intermittently discontinued feeding sodium bearing waste into the system to address potential agglomerations in the Denitration Mineralization Reformer (DMR) bed that caused differential temperature issues in the DMR bed. IWTU personnel have acknowledged that variations in the chemistry of the waste in the Tank Farms, as compared to the previously processed simulant, may be contributing to the issues. Other waste-to-simulant and waste-to-water mixing ratios are under consideration to improve system performance. IWTU personnel are also performing system modifications to improve heater performance.

**Full-Scale Emergency Exercise.** This exercise scenario was categorized as a severe event, which involved a loss of coolant in the ATR Reactor due to a failed loop experiment that caused a radiological release, as well as two personal injuries. Overall, the exercise taxed the participants' and emergency responders' abilities to manage, prioritize, and address a variety of events. Some objectives appear unmet, including completion of timely notifications, timely and orderly evacuations, and inadequate roll call resulting in an actual missing person. The Board's staff will evaluate this exercise more fully upon receiving the after-action report.