DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 7, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: Bradford V. Sharpless, Cognizant Engineer
SUBJECT: Idaho National Laboratory (INL) Report for August 2018

DNFSB Staff Activity. Board's staff member R.G. Quirk was on site during August 24–28, 2018. His objectives while on site included:

- Performing routine resident inspector-like oversight at INL.
- Reviewing the implementation of interim controls associated with the waste drum exothermic reaction event that occurred at Accelerated Retrieval Project (ARP) V.
- Observing the Advanced Mixed Waste Treatment Project's National Transuranic (TRU) Program recertification audit.

The Board's staff provided an average of 1.6 person-weeks per month of on-site oversight for the first eleven months of fiscal year 2018.

Accelerated Retrieval Project VIII. On August 6, 2018, the Department of Energy Idaho Operations Office approved an Evaluation of the Safety of the Situation (ESS-137) to permit the restart of operations in the ARP VIII facility. Waste-related operations in ARP VIII had been secured since the April 2018 waste drum exothermic reaction event in ARP V. ESS-137 establishes new controls in ARP VIII, including requirements to place exhumed sludge target waste displaying a uranium signature or exhumed waste containing potentially pyrophoric metals in a waste tray in the Retrieval Area, rake the waste material to an even distribution in the tray, and thermally monitor the waste in the tray for increased temperatures after a minimum 24-hour holding period.

Integrated Waste Treatment Unit. On August 20, 2018, operators at INL's Integrated Waste Treatment Unit (IWTU) concluded a functional test of the facility's processing systems. The test operation, in which non-radioactive waste simulant was used, was intended to run for 30 days, but managers made the decision to shut down and cool down IWTU's processing systems at the 29.66-day mark due to a high differential pressure observed across the system's process gas filter (PGF). Fluor Idaho, LLC (Fluor Idaho), personnel are working with the filter's vendor and a variety of laboratories and manufacturers to determine why the PGF elements clogged and how to prevent a recurrence.

Accelerated Retrieval Project VII. On August 28, 2018, operators exceeded the allowable material at risk value of 160.5 plutonium-239 equivalent curies (PE-Ci) in the ARP VII facility. A box containing portions of a discarded glovebox was brought into ARP VII for size reduction. Based upon historical information, the box was believed to contain approximately 7 PE-Ci of radioactive material. After operators cut the box into four segments, the individual parts underwent non-destructive assay (NDA). Fluor Idaho NDA experts subsequently determined that the box contained approximately 2000 PE-Ci of Pu-238. Fluor Idaho managers directed a stop of resizing work in ARP VII and entered the discovery process for evaluating a potential inadequacy in the safety analysis.